

DISCLAIMER

*Private pump
underground piping - where
previous clean up
on photos*

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RECOMMENDATIONS CONTAINED IN THIS REPORT
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NECESSARILY THOSE OF EPA.

RCRA RECORDS CENTER
FACILITY Ciba Geigy Corp
I.D. NO. RID001194323
FILE LOC. R-5
OTHER _____

FINAL RFA REPORT CIBA-GEIGY RCRA FACILITY ASSESSMENT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	: 265
EPA Region	: I
Facility I.D. No.	: RID001194323
Contract No.	: 68-01-7331
CDM Federal Programs	
Corporation Document No.	: T265-R01-FR-BGNC-3
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Date Prepared	: 1/20/88

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CIBA-GEIGY
RCRA FACILITY ASSESSMENT

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CDM Federal Programs Corporation

REC'D

1-21-88

January 20, 1988

Hans Waetjen
Project Officer
U.S. Environmental Protection Agency
401 M Street, Room 2834
Washington, D.C. 20460

PROJECT: EPA CONTRACT NO.: 68-01-7331
DOCUMENT NO.: T265-R01-EP-BMQJ-1
SUBJECT: Final RFA Report for Work Assignment 265
Ciba-Geigy, RCRA Facility Assessment
Document No.: T265-R01-FR-BGNC-3

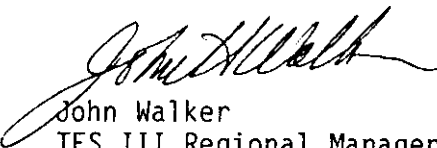
Dear Mr. Waetjen:

Please find enclosed the Final RFA Report entitled, "Ciba-Geigy, Cranston, Rhode Island." This deliverable fulfills the reporting requirements for this work assignment.

If you have any comments regarding this submittal, please contact Dennis Guistra of Versar Inc. at (703) 750-3000 within two weeks of receipt of this letter.

Sincerely,

CDM Federal Programs Corporation


John Walker
TES III Regional Manager

MRK:rf

Enclosure

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ATTACHMENTS

Attachment A - Analytical Results for Samples Collected During Sampling Visit at Ciba-Geigy, Cranston, Rhode Island, June 11-12, 1987.

1.0 INTRODUCTION

In February 1987, CDM Federal Programs Corporation received a work assignment (CDM WA No. 265) under TES III, U.S. Environmental Protection Agency (EPA) Contract No. 68-01-7731, to provide enforcement support to EPA Region I by conducting a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) of the Ciba-Geigy Corporation chemical manufacturing plant in Cranston, Rhode Island. TES III team member, Versar Inc., accepted the work assignment, conducted the RFA, and submitted, as a deliverable, a final RFA report which develops site specific information supporting potential RCRA enforcement action(s) at the Ciba-Geigy plant. The submission of this final RFA report marks the completion of the RFA and is provided as partial fulfillment of the reporting requirements for this work assignment.

1.1 RFA Objectives

The 1984 Hazardous and Solid Waste Amendments (HSWAs) established broad new authorities to assist EPA in the implementation of the RCRA corrective action program. The primary objective of the RCRA corrective action program is to remediate releases of hazardous waste or hazardous constituents that threaten human health or the environment. The RCRA corrective action program, which applies to all operating, closed, or closing treatment, storage or disposal facilities regulated under Subtitle C (Hazardous Waste Management) of RCRA consists of three phases, the RCRA facility assessment, the RCRA facility investigation (RFI), and corrective measures (CM).

- The RCRA facility assessment is intended to identify and gather information on releases or potential releases at RCRA facilities, evaluate solid waste management units (SWMUs) and other areas of concern for releases to all environmental media, evaluate regulated units for releases to all environmental media other than ground water, make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility, and screen from further investigation those SWMUs which do not pose a threat to human health or the environment.

- The RCRA facility investigation is conducted to fully characterize the extent of identified releases requiring further action.
- Corrective measures (CM) to determine the need for and extent of remedial measures. This phase includes the selection and implementation of appropriate remedies for all problems identified.

This report concerns the RFA, the first phase of the RCRA Corrective Action Program, and provides complete information gathered during each step of the RFA three-stage process. All three steps of the RFA entail the collection and analysis of data to support initial release determinations from SWMUs and other areas of concern located at the facility:

- The preliminary review (PR) focuses primarily on evaluating existing information such as inspection reports, permit applications, SWMU responses, waste manifests, historical monitoring data, and conducting relevant personnel interviews to ascertain the occurrence of potential or actual releases to all environmental media at the facility.
- The visual site inspection (VSI) entails the onsite collection of visual information to obtain additional evidence of releases and identify other areas of concern; confirm the existence of all SWMUs; fill in data gaps identified during the PR; and focus recommendations for further action.
- The sampling visit (SV) fills in data gaps that remain upon completion of the PR and VSI by obtaining sampling and field data. This information is used to determine whether any releases identified warrant further investigation beyond the RFA. The need for a sampling visit is developed and presented as a recommendation based on the findings of the PR and VSI.

The RFA is completed when the assessment has identified and gathered information on all potential releases of concern; evaluated all SWMUs and other areas of concern for releases; made preliminary determinations regarding releases of concern and the need for further enforcement actions at the facility; and screened from further investigation those SWMUs which do not pose a threat to human health or the environment.

1.2 RFA Approach

The PR, VSI, and SV of the Ciba-Geigy Cranston plant were conducted by Versar Inc. in accordance with the final RCRA Facility Assessment Guidance document dated October 1986. During the PR, Versar gathered and evaluated existing information from U.S. EPA Region I and Rhode Island Department of Environmental Management (RIDEM) offices, to identify SWMUs and other areas where wastes have been managed at the facility. Versar examined documents and other written materials to obtain information on the facility's location, waste characteristics, evidence of past releases, and potential environmental receptors. Versar also conducted interviews of federal and state officials knowledgeable of site operations and obtained information directly from Ciba-Geigy throughout the RFA.

A preliminary RFA report was prepared and submitted in May 1987 to EPA Region I by Versar upon completion of the PR. This report described facility operations and waste handling activities, identified and evaluated all SWMUs onsite, and provided recommendations for further action at Ciba-Geigy including a VSI and SV to complete the RFA.

A VSI of the facility was conducted on Friday, May 8, 1987 in conjunction with EPA, RIDEM, and Ciba-Geigy. The purpose of the VSI was to visually assess the facility for evidence of release, to ensure that all SWMUs and areas of concern had been identified, to fill in any information gaps remaining after the PR, and to provide specific guidance in developing a SV work plan. Each identified SWMU was examined for the following:

- Unit Characteristics
- Waste Characteristics
- Pollutant Migration
- Evidence of Release
- Exposure Potential

Optimum sampling locations were identified and information necessary to effectively conduct future sampling onsite was obtained. Weather

conditions during the VSI were cool (60°F) and partially overcast with a slight breeze from the west throughout the day. A summary of site activities including photographs taken during the VSI, was presented in a VSI report submitted in June 1987 to U.S. EPA Region I. The report also provided recommendations for further action which included sampling at various SWMUs and area of concern for which additional field information was deemed necessary.

Versar subsequently prepared and submitted an SV work plan in June 1987 outlining sampling locations, sample collection procedures, and analytical requirements for the proposed SV. During the SV which began on Thursday, June 11, 1987 and extended until Friday, June 12, 1987 Versar collected a total of 18 environmental samples including ground water, surface soil, subsurface soil, and river sediment samples. All samples collected by Versar were split with Malcolm Pirnie, Inc. of Paramus, New Jersey, environmental consultants for Ciba-Geigy. All Ciba-Geigy split sample analyses were performed by U.S. Testing, Hoboken, New Jersey. Detection limits and analytical methods were not provided in the results sent to EPA Region I by Ciba-Geigy. EPA samples were analyzed through the U.S. EPA Contract Laboratory Program (CLP) for hazardous substance list (HSL) volatile organic, semivolatile organic, pesticide/PCB, total metal, dioxin, and furan parameters in accordance with the CLP statement of work for organic and inorganic analyses (EPA, 1986b; EPA, 1985). Sampling locations and complete sampling results can be found in Attachment A of this report.

A summary of site activities including photographs taken during the SV, was presented in a SV trip report submitted in July 1987 to U.S. EPA Region I. The report noted that information obtained prior to and during the SV, together with analytical data received from Region I would be used to make release determinations and provide recommendations for each SWMU and area of concern at Ciba-Geigy. The SV conducted by Versar on June 11-12, 1987 was the final step in the RFA process for the Ciba-Geigy

Cranston facility. This final RFA report documents the activities taken during the RFA, and provides final RFA recommendations for further action at Ciba-Geigy.

2.0 FACILITY DESCRIPTION

The Ciba-Geigy Corporation chemical manufacturing plant is located at 180 Mill Street, Cranston, Rhode Island, in a small industrial park, adjacent to residential communities of single family houses. The former plant lies in the southeast corner of Cranston approximately 4.5 miles south of downtown Providence in an unsurveyed area of the Providence quadrangle (longitude 70° 24' 25"W and latitude 41° 46' 26"N) (Figure 1). The Providence quadrangle, situated in northeastern Rhode Island at the head of Narragansett Bay, is the most densely populated area in the state and serves as one of the important industrial centers of New England.

Drainage in the southern part of the quadrangle flows eastward into the Providence River estuary by way of the Pawtuxet River and its pond-strewn tributaries, the Pocasset River and Meshanticut Brook. The Ciba-Geigy plant straddles the Pawtuxet River, which is the boundary between the cities of Cranston, Providence County and Warwick, Kent County in this area. Most of the site is within the flood plain of the Pawtuxet River, approximately 1.4 miles from the mouth of the river. The topography of the site slopes toward the Pawtuxet River.

Ciba-Geigy has, in Cranston, 6.8 acres which have been used for production, laboratory, and pilot plant facilities, and another 5.8 acres which was occupied by a biological wastewater treatment plant. Ciba-Geigy also purchased 23 acres of adjoining property from the Atlantic Tubing and Rubber Company, but this land has not been utilized. In addition to the property in Cranston, Ciba-Geigy has 27.5 acres in Warwick which were minimally developed and utilized for cafeteria, locker room, warehouse, engineering and maintenance facilities, and hazardous waste drum storage (Figure 2).

Ciba-Geigy was permitted to operate as a hazardous waste storage facility under RCRA (EPA ID Number RID001194323) since 1982. The facility's original Part A permit application was submitted to EPA on November 18, 1980. Subsequently, Part B of the permit application was



FIGURE 1
GENERAL LOCATION MAP, CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND

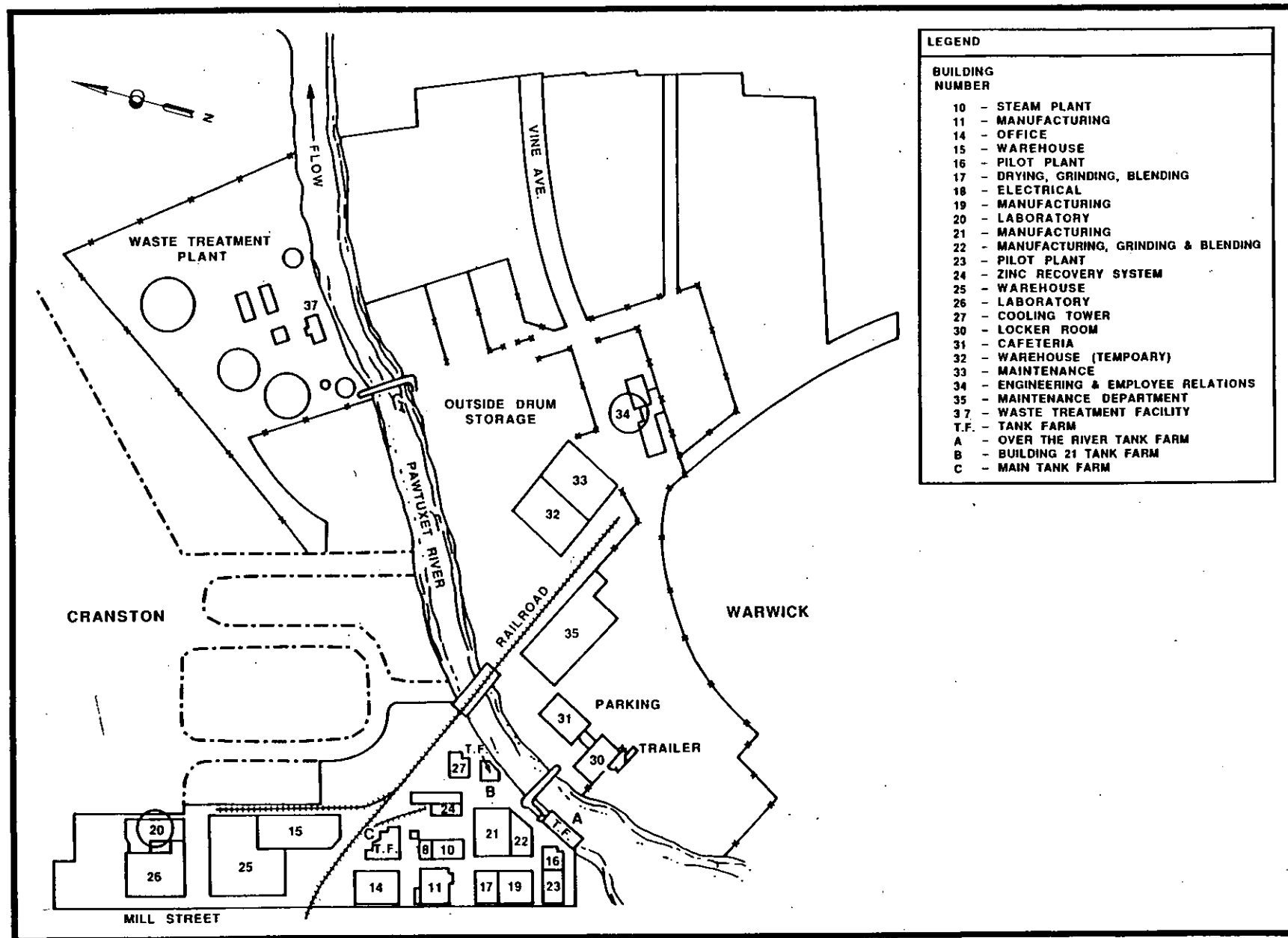


FIGURE 2. SITE PLAN, CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND (CIBA-GEIGY, 1985b)

called by EPA on March 9, 1982, and received September 14, 1982 (EPA, 1984). In February 1986, a public hearing was scheduled by RIDEM regarding the approval of a state hazardous waste permit (EPA, 1986). The state permit was approved but in September 1986 Ciba-Geigy notified RIDEM of its intent to close the facility's hazardous waste storage areas (Ciba-Geigy, 1986).

2.1 Surface Water

Local surface waters in the area consist of several ponds and lakes to the north-northwest of the site. All flow is southerly toward the Pawtuxet River, which flows east into Pawtuxet Cove, and the Providence River. An unlimited quantity of saline water is available in the Providence River and Narragansett Bay. An unnamed stream from Bellefont Pond flows through the former Atlantic Tubing and Rubber Company property and enters the Pawtuxet River just upstream of the Ciba-Geigy facility. Industrial and municipal waste discharges which occur along the length of the river affect flow and make the water unsuitable for use without considerable treatment.

The Pawtuxet River is about 80 feet wide as it passes the plant and flow may be expected to exceed 41 million gallons per day 95 percent of the time. Approximately seven miles upstream from Ciba-Geigy, at River Point in West Warwick, the Pawtuxet River divides into a north and south branch. Discharges from the Scituate Reservoir in Scituate, Providence County and the Flat River Reservoir in Coventry, Kent County, appear to have the most important impact on the north and south branches, where 85 percent of the flow in the north branch at the confluence comes from the Scituate Reservoir and 85 percent of the flow in the south branch at the confluence comes from the Flat River Reservoir, at low flow conditions.

The river basin is hilly and contains many lakes, ponds, and reservoirs. Along this basin numerous dams have been constructed which affect flow by regulation and diversion. A dam near the mouth of the

Pawtuxet River assures that fresh water is available above the dams. However, the quality of the water rather than quantity limits the development of the river as a water supply. Major municipal water supply systems which provide all drinking water in the area, including the Ciba-Geigy facility water supply, obtain most of their water from reservoirs on impounded small streams.

There are no private wells in the area around Ciba-Geigy although the availability of ground water from glacial outwash deposits, which underlie most of the Providence quadrangle, is high. Most of the ground water in the quadrangle is utilized for industrial needs (Halberg et al., 1961).

2.2 Area Geology and Hydrogeology

Ciba-Geigy is located in the relatively low lying area adjacent to the Providence River and Narragansett Bay referred to as the Tidewater subarea of the Providence quadrangle (Halberg, et al., 1961). The Providence quadrangle is entirely within the Seaboard Lowland section of the New England physiographic province (Fenneman, 1938). Physiographically, the area is part of the Narragansett Basin which generally ranges in altitude from about 40 feet to about 100 feet above sea level.

Most of the rock units in the Providence quadrangle are utilized as sources of ground water or are potential sources, and therefore may be classified as aquifers. However, on the basis of their capacity to contain, yield and transmit water, the rock units are divided into two groups: those that are consolidated and can yield only small quantities of water from fractures, and those that are unconsolidated and can yield appreciable quantities of water from interconnected pore spaces.

The consolidated rocks of the Providence quadrangle consist of two major groups: sedimentary rocks of Pennsylvanian age in the Narragansett Basin, and igneous and metamorphic rocks of pre-Pennsylvanian age west of the basin. Circulation of ground water in the consolidated rocks is restricted almost entirely to secondary structures such as joints,

fractures, and openings along surfaces of bedding. Since there are minor differences in water-bearing capacity from one group to another among the consolidated rocks, they are considered collectively as a single water bearing unit.

All the consolidated rocks in the quadrangle are dense, compact, and generally have a porosity of less than one percent. Municipal and industrial wells deriving water from the bedrock in the Tidewater subarea yield from less than 1 to about 500 gallons per minute (gpm), according to local variations in the thickness and character of the glacial cover. The range in depth of most bedrock wells is from 70 to 550 feet. The depth to the static water level is generally between 5 and 50 feet below the land surface.

Unconsolidated deposits of glacial drift almost completely cover the bedrock of the Providence quadrangle. The unconsolidated deposits may be grouped into three classes according to their mode of deposition:

- (1) glacial outwash, composed of intercalated lenses and beds of clay, silt, sand, and gravel derived chiefly from debris-laden Pleistocene ice and subsequently transported and deposited by melt-water streams;
- (2) glacial till, composed largely of unsorted unstratified material (clay, sand, and larger rock fragments commonly referred to as "hardpan") laid down directly by Pleistocene ice; and (3) alluvial, river-terrace and swamp deposits of recent age laid down by streams of the present epoch.

The outwash deposits contain the most productive water-bearing beds in the quadrangle and are the primary source of ground water in the Tidewater subarea. The average field permeability of these beds is estimated to be on the order of 2,000 gallons per day (gpd) per square foot (Bierschenk, 1959). Wells tapping glacial till generally yield only a few hundred gallons per day. No wells are known to tap the alluvial deposits which are discontinuous and incapable of yielding large supplies of water. The lithologic characteristics and water-bearing properties of the geologic units presented above are summarized in Table 1.

TABLE 1
GEOLOGIC UNITS IN THE PROVIDENCE QUADRANGLE
AND THEIR WATER-BEARING PROPERTIES
(Bierschenk, 1959)

Age		Geologic units	Material	Water-bearing properties
System	Series			
Quaternary	Recent	Alluvium, river-terrace, and swamp deposits (0-25 ft. thick)	Sand and silt and decayed organic matter.	Not known to be tapped by wells. Discontinuous and thin; hence would not yield large supplies.
	Pleistocene	Outwash (0-280 ft. thick)	Unconsolidated stratified and sorted gravel, sand, silt, and clay in irregular lenses. Forms thick deposits in most of lowland areas.	Moderately to highly permeable. Yields water readily to properly constructed wells. Unit as a whole affords most of the water currently pumped and potentially available.
		Till (0-40 ft. thick)	Boulders, gravel, sand, and clay—unstratified and unsorted. Unconsolidated but compact. Forms thin mantle over bedrock in most of upland areas.	Relatively poor water-bearing material but yields small supplies to numerous large-diameter wells. At present being supplanted for domestic supplies by public-supply system or by wells in bedrock.
Pennsylvanian		Rhode Island formation, Wamsutta formation. (0-10,000 ft. thick)	Consolidated sedimentary rocks. Underlie the unconsolidated deposits at depths ranging from 40 to 280 feet in the Narragansett Basin.	Dense and compact except for joint cracks and tabular openings along bedding planes, which yield small supplies to drilled wells. Yield depends in part on nature and thickness of overlying deposits and on topographic situation. Median yield of known wells is about 45 gpm.
		Pondville conglomerate (0-100 ft. thick)	Consolidated sedimentary rocks. Grades upward into the overlying sandstone and finer grained sedimentary rocks of the Rhode Island formation.	
Devonian(?) or older		Esmond granite, Scituate granite gneiss, Grant Mills granodiorite, Quartz diorite, Metadiorite.	Consolidated metamorphic and igneous rocks. Considerably deformed. Commonly massive but schistose along the borders. Upper portion considerably fractured. Underlie the unconsolidated deposits at average depth of 30 feet in western upland.	Yield small supplies to drilled wells that tap the fractured upper portions or that intersect openings along joints at greater depths. Yield depends in part on nature and thickness of overlying deposits and topographic situation. Median yield of known wells about 5 gpm.
Precambrian(?)	Blackstone series	Hunting Hill greenstone, Westboro (?) quartzite.		

Because the Providence quadrangle is largely an urban area, the surficial geology is greatly obscured and the outwash-plain deposits are poorly exposed. West of the Providence River in the Tidewater subarea much of the outwash consists of thin beds of sand overlying finer materials interbedded locally with deposits of sand and gravel. The outwash occupies and overlies preglacial river channels, along which the deposits reach their greatest thickness. Since the best places to obtain large quantities of ground water are where the outwash is the thickest (and most permeable) the best supplies of ground water can be found in these preglacial river channels. [The deposits in the buried preglacial channel near the Pawtuxet River are up to 280 feet thick.] Wells tapping deposits in this buried channel would be capable of yielding about 1,300 gpm (Halberg, et al., 1961). ✓

Typically, wells tapping outwash in the Tidewater subarea have ranged in depth from 10 to 150 feet. The depth to static water level is between 5 and 30 feet below the land surface. The unconsolidated deposits beneath the outwash plains are unconfined. Except in localized areas, the upper surface of the zone of saturation is free to rise and fall with changes in ground-water storage. Ground water is recharged largely by infiltration of rainfall and snowmelt within the Tidewater subarea as well as the rest of the Providence quadrangle.

Contamination of ground water by encroachment of salt water may occur in areas adjacent to the sea or saline estuaries if ground-water levels are drawn below sea level and hydraulic continuity exists between the salt water body and the aquifer from which water is pumped, or if the seaward extension of the aquifer already contains salt water.

No information was obtained during the PR regarding the quality of ground water or the specific geologic units directly below the Ciba-Geigy facility. Toluene is known to have been released onsite in at least one area. Toluene was detected in ground-water samples collected by ✓

Ciba-Geigy near a sump in one of the facility buildings (Section 4.11). During the VSI, several recently installed ground-water level measurement pipes were noted throughout the facility. However, no monitoring wells are known to exist onsite. EPA did not require Ciba-Geigy to initiate a ground-water monitoring program during plant operations (Ciba-Geigy, 1984). Ground-water samples were collected by Versar from selected ground-water level measurement pipes during the SV to determine the presence of contaminants and identify potential releases. Ambient air monitoring, using a photoionization unit, at the openings of the ground-water pipes revealed the probable presence of volatile organic compounds (VOCs). The photoionization analyzer used was capable of detecting (in the parts per million range) organic and some inorganic compounds with ionization potentials at or below 10.7 electron volts (eV). Analytical results of the ground-water sampling are presented in Section 6.3.

3.0 FACILITY OPERATIONS

3.1 Current Operations

All chemical manufacturing operations at the Ciba-Geigy Cranston plant ceased as of May 1986. Ciba-Geigy is currently in the process of closing the facility and dismantling the plant. Concern has been expressed that Ciba-Geigy is going to close the facility and leave the site with hazardous waste remaining in the surrounding environment. Ciba-Geigy has submitted specifications for clean up and a proposal for certification of closure to the Rhode Island Department of Environmental Management, Division of Air and Hazardous Materials.

It is the intent of Ciba-Geigy that all facilities at the Cranston plant which have been used for the storage, transfer and/or manufacturing of chemical materials be cleaned and decontaminated as required, so that upon closure, the entire facility could be used for other purposes. This work includes the clean up of two areas used for the storage of hazardous waste, the waste drum storage area and the waste solvent holding tank. Upon completion of closure and post-closure activities, Ciba-Geigy may still be responsible for corrective action under the RCRA Corrective Action Program depending upon the results of the RFA and/or further investigations.

3.2 Historic Operations

3.2.1 Facility History

From 1930 to 1949, the Alrose Chemical Company occupied part of the present plant site in Cranston now known as Ciba-Geigy. In 1949, Geigy Chemical Corporation of Ardsley, New York, purchased the land from Alrose Chemical and operated the facility as the new chemical manufacturing headquarters for all Geigy chemicals. Over the years, the plant grew in terms of production capacity as well as process and product development capability. Eventually demand rose beyond the capacity of the plant and production was transferred to other major facilities built by Geigy Chemical.

In October 1971, Geigy Chemical merged with Ciba Corporation of Summit, New Jersey, to form Ciba-Geigy Corporation, a wholly owned American subsidiary of Ciba-Geigy Limited, headquartered in Basel, Switzerland. The Cranston plant, after the merger, was used as a pilot/start up facility designed and built for manufacturing almost any organic chemical on a batch type basis. In January 1984, Ciba-Geigy announced plans for a gradual phase out of the Cranston plant as part of an overall consolidation of Ciba-Geigy's chemical manufacturing operations. As of May 1986, Ciba-Geigy had ceased all chemical manufacturing operations at the site and begun dismantling of the facility.

Since Geigy Chemical Corporation began operation at the site in 1949, the practice of supplying small volumes of specialized products has led to the production of a vast array of chemicals. Major product lines were:

1950s - dye stuffs, tanning and agricultural products

1960s - plastic additives, ultraviolet (UV) brighteners, and pharmaceuticals

1970s - pharmaceuticals and agricultural products

1980s - pharmaceuticals and plastic additives

Ciba-Geigy is currently a diversified chemical company engaging principally in the discovery, development, manufacture, and marketing of a wide variety of special purpose chemicals and chemical products throughout the United States.

3.2.2 Process Operations

The Cranston plant of Ciba-Geigy Corporation was a batch process, multi-product, fine organic chemical, and pharmaceutical manufacturing operation utilizing approximately 500 raw materials to produce nearly 150 finished products and numerous intermediate products. These products were manufactured utilizing common equipment. Typical operations

included organic synthesis, crystallization, distillation, isolation by filtration, drying and grinding. Major process facilities included:

- Manufacturing Building 21/22
- Manufacturing Building 17/19
- Manufacturing Pilot Plant 16/23
- Zinc Recovery System Building 24
- Manufacturing Building 11
- Cooling Tower and Pump House, Building 27
- Waste Treatment Plant, Raw Waste Sump, and all underground pipes and sumps

Specific information regarding unique manufacturing processes has been maintained confidential by Ciba-Geigy in order to protect trade secrets. In general, since all chemical processes are centered around the chemical reactor, a batch reactor (process vessel) takes in all necessary reactants (raw materials) at the beginning and processes them according to a predetermined course of reaction (to yield the desired product or products) during which no material is fed into or removed from the reactor. Usually the reactor is in the form of a tank and is used primarily in small-scale production. Reactors at Ciba-Geigy were manifolded on any given building and emissions passed through condensers and either an acid or caustic and/or water scrubber. Cooling water was predominantly recycled.

The nature of organic chemical reactions run by Ciba-Geigy were such that by-products were formed consequentially and more by-products were generated in the purification of the products. Of the more than 300 processes Ciba-Geigy may have been involved with to form desired products, approximately 70 waste streams, classified as hazardous waste under RCRA (40 CFR 261), were generated. These wastes were mostly listed chlorinated and unchlorinated solvents, and unlisted ignitable solvents, as well as other chemicals. Details regarding sources of pollutants were not available by stream source due to the batch nature of plant processes and the high variability of the processes which may have been running in the multipurpose equipment at any given time.

The substances presented in Table 2 were used as raw materials or were produced as by-products during manufacturing operations (Ciba-Geigy, 1985b) and subsequently may have been present in process wastes. Up to three million pounds per month of chemicals were used to produce about one million pounds per month of finished products.

Major plant products manufactured in 1982 included:

Plastic stabilizers	<u>Irganox</u> <u>Tinuvin</u>	Added to plastics to help resist deterioration from environmental exposure
Bacteriostats	<u>Irgasan</u>	Used in soap, deodorants, anti-perspirants, fabric softeners, and household cleaners to inhibit bacterial growth
Photochemicals	<u>Ilford</u>	Used in making color prints from color slides at home
Film forming foams	<u>Lodyne</u>	Used in both fire-fighting and surface coating operations
Pharmaceuticals	30 different active ingredients	Used in medicines prescribed in the treatment of arthritis, hypertension, depression, epilepsy, and gout

During chemical manufacturing operations improved solvent recovery operations and water pollution control equipment were implemented to reduce the waste load in process water. Concentrated by-products and solvents were recycled and recovered where possible, while spent solvents and other wastes that could be collected in significant quantities were containerized and stored onsite for ultimate offsite disposal. On occasion, concentrated materials were neutralized or chemically reacted to reduce the degree of hazard by utilizing normal production equipment (Ciba-Geigy, 1985b). Chemicals that appeared in the plant's process wastewater were predominantly from vacuum jets, wash vacuum pumps, and air pollution control scrubbers.

TABLE 2
RAW MATERIALS AND BY-PRODUCTS PRODUCED DURING
MANUFACTURING OPERATIONS AT CIBA-GEIGY, CRANSTON, RHODE ISLAND
(Ciba-Geigy, 1985b)

Acetic Acid	Cyanogen Chloride	Phosphoric Acid
Acetic Anhydride	Cyclohexane	Potassium Hydroxide
Acrylonitrile	Diethylamine	Potassium Permanganate
Aluminum Sulfate	Dimethylamine	Silver Nitrate
Ammonia	Epichlorohydrin	Sodium Hydrosulfide
Aniline	Formaldehyde	Sodium Hydroxide
Butyric Acid	Formic Acid	Sodium Hypochlorite
Calcium Hypochlorite	Hydrochloric Acid	Sodium Nitrite
Chlorine	Maleic Acid	Sodium Phosphate
Chlorobenzene	Maleic Anhydride	Sulfuric Acid
Chloroform	Methyl Acrylate	Toluene
Chlorosulfonic Acid	Naphthalene	Triethylamine
Chromic Sulfate	Nitric Acid	Xylene
Cresol	Nitrobenzene	Zinc
Cupric Acetate	Phenol	

In January 1970, RIDEM issued an Order of Approval to Ciba-Geigy for the construction of a wastewater treatment plant. Construction of an onsite biological treatment system was completed in 1972. More than 1,000,000 gallons per day of process wastewater was treated by screening, neutralization, biological oxidation, chlorination, and clarification through this system before being discharged to the Pawtuxet River. Table 3 indicates the water flow from process buildings to the treatment plant estimated on a daily basis during 1981. (Ciba-Geigy, 1981a).

As a result of manufacturing operations, process air emissions constituted another major pollutant pathway. Air pollution control devices were installed in the 1950s on all process air emitting equipment to protect the air quality surrounding the plant. All manufacturing buildings were equipped with special purpose and general purpose scrubbers for air emissions control. In 1981, at least 12 stacks were used to discharge to the atmosphere, each of which was controlled by at least one scrubber (RIDEM, 1981). In 1984, Reasonably Available Control Technology (RACT) limitations were due to be implemented by RIDEM on all facilities that emit 100 tons or more of volatile organic compounds in compliance with U.S. EPA Clean Air Act amendments. Ciba-Geigy was required to study the installation and operation of all VOC-emitting process equipment in a manner that constituted RACT.

3.2.3 Hazardous Waste Management Practices

Since 1949 when Geigy Chemical Corporation began operation at the site, there has been no disposal of any waste from chemical manufacturing on the plant site (Ciba-Geigy, 1985). Some coffee grounds, gypsum, and carbon residue may have been landfilled along the southern portion of the property during early operations by predecessors of Geigy Chemical. These materials were excavated during the construction of buildings erected since 1954 (Ciba-Geigy, 1985). ✓

No wastes generated offsite were accepted by the facility. All hazardous wastes generated by Ciba-Geigy and stored at the facility were ✓

TABLE 3
WATER FLOW TO THE TREATMENT PLANT,
CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND
(Ciba-Geigy, 1981a)

BUILDING NUMBER	SCRUBBERS			NASH VACUUM PUMPS	MISCELLANEOUS (Values Allocated On Basis Of Square Feet of Building)	TOTAL
	VACUUM JETS	GENERAL VENT	CONCENTRATED			
21	94,000	29,000	1,000	130,000	69,000	323,000
19/17	76,000	58,000	1,000	86,000	75,000	296,000
11	38,000	72,000	1,000	69,000	37,000	217,000
22	38,000	29,000	0	43,000	42,000	152,000
23	28,000	29,000	1,000	52,000	30,000	140,000
16	19,000	14,000	1,000	9,000	14,000	57,000
24	0	0	1,000	0	2,000	3,000
Totals	293,000	231,000	6,000	389,000	269,000	1,188,000

regularly shipped to approved disposal areas offsite. The facility shipped over four million pounds of hazardous waste each year, most of it by 10,000-gallon railroad cars to one of Ciba-Geigy's southern facilities for incineration. Additional wastes were sent to various disposal facilities in Ohio, New Jersey, and Louisiana.

Ciba-Geigy operated its hazardous waste storage facility prior to 1982 and was allowed to continue operating under interim status until an application for a Hazardous Waste Treatment and Storage Facility permit (for storage greater than 90 days) was approved. Ciba-Geigy stored wastes onsite in 55-gallon steel drums and in a 6,000-gallon steel tank. The drum storage area had a maximum capacity of 768 fifty-five gallon drums which were used to contain various wastes including flammable solids, oil-containing PCBs, corrosive solids, distillation sludge, chloroform, polychlorinated organics, flammable liquids, alcohol, and polyimides. The 6,000-gallon tank was used to store a solvent waste mixture comprised of varying solutions of toluene, xylene, naphthalite, acetone, monochlorobenzene, isopropanol, heptane, methanol, ethanol, and water.

The expected maximum inventory of wastes in storage at any given time during the operating life of Ciba-Geigy's Cranston plant was 48,290 gallons:

Drums:	Flammable solids	13,200 gallons
	Flammable liquids	26,400 gallons
	Corrosive solids	2,640 gallons
Tank:	Solvent solutions	6,000 gallons

Waste manifests from 1981 through 1986 examined during the PR showed that wastes were principally transported offsite according to the classifications in Table 4.

As of November 1986, the drum storage area and waste solvent storage tank had been subjected to a cleaning process which resulted in the removal and disposal of all hazardous waste from these locations (OHM, 1986).

TABLE 4
WASTE MANIFEST CLASSIFICATIONS FOR OFFSITE DISPOSAL
AT CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND

Acetone solution	Fuel oil	(PCB)
Asbestos	Halogenated organic solid	Poison B
Chloroform	Hazardous solid waste	Polychlorinated organics
Corrosive material	Heptane	Polyglycol
Corrosive solids	Methanol solutions	Process samples
Corrosive waste	Methyl acrylate	Substituted pyroolidane
Cyanuric chloride	Naphtha	Sulfuric acid
Ether	Naphthalene	Toluene solutions
Filter media	Naphtha solutions	Waste organic mixture
Flammable liquid	Organic sludge	Waste solvents
Flammable solid	Organic solids	Xylene solutions

During closure of the facility, certain materials either generated during closure activities or stored onsite but not classified as waste, such as raw materials and intermediates, required further use of appropriate waste management practices.

4.0 SOLID WASTE MANAGEMENT UNITS

A primary goal of the RFA is to identify and evaluate information regarding hazardous releases from solid waste management units (SWMUs) to air, surface water, ground water, and soils. The RFA is also intended to screen from further investigations those SWMUs which do not pose a threat to human health or the environment.

Under RCRA, Section 1004(28), the term "solid waste management" means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste. A solid waste management unit is defined as any discernible waste management unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. This definition may include manufacturing process areas, waste piles, recycling units, wastewater treatment units, and areas contaminated by "routine systematic and deliberate discharges".

Ciba-Geigy, in response to a request for information from EPA pursuant to Section 3007 of RCRA, identified the following 11 SWMUs at the Cranston facility (Figure 3) (Ciba-Geigy, 1985, 1985a):

- SWMU 1 - Hazardous Waste Storage Area (Drums)
- SWMU 2 - 6,000-gallon Hazardous Waste Storage Tank
- SWMU 3 - 7,500-gallon, 90-day Accumulation Tank
- SWMU 4 - Trash Compactor
- SWMU 5 - Former Silt Pile
- SWMU 6 - Zinc Oxide Pile
- SWMU 7 - Chlorosulfonic Acid Spill Area
- SWMU 8 - Potassium Ferrocyanide Spill Area
- SWMU 9 - Wastewater Pipeline Break (January 12, 1982)
- SWMU 10 - Wastewater Pipeline Break (September 7, 1983)
- SWMU 11 - Building 11 Area

No additional SWMUs or areas of concern were identified during the PR or VSI. Unit and waste characteristics, as well as release information for each SWMU identified are discussed in this section of the report. Other areas of concern at the facility are discussed in Section 5.0.

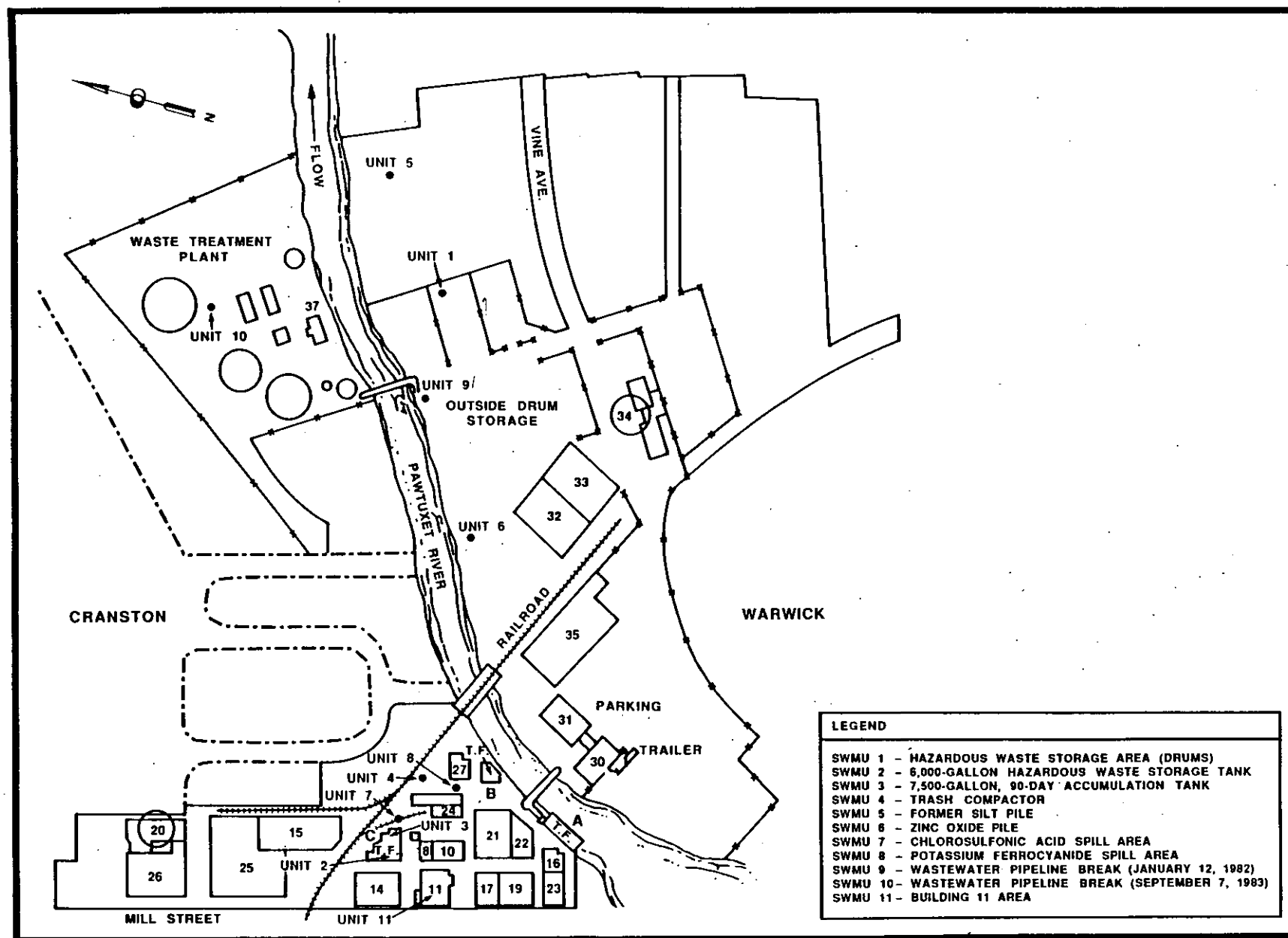


FIGURE 3. LOCATIONS OF SOLID WASTE MANAGEMENT UNITS, CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND (CIBA-GEIGY, 1985)

4.1 SWMU 1 - Hazardous Waste Storage Area (Drums)

SWMU 1 was located on the Warwick side of the Ciba-Geigy facility in the far northeast corner of the fenced property. The hazardous waste storage area was designed for a maximum capacity of 768 fifty-five gallon drums. It is an asphalt-lined area (42 feet wide by 58 feet long) enclosed by a 12 inch high, 8 inch wide concrete containment wall capable of holding more than 18,000 gallons. A solid metal gate with rubber gasketing was wedged into place at the entrance to the storage area during facility operations. The gate was lifted in and out of place by a forklift and permit access. The storage area is surrounded by a chain-link fence.

The area was operated from 1981 to 1986 solely for storage of hazardous waste (EPA, 1986). There were approximately 300 to 400 drums stored in the area at a given time (Ciba-Geigy, 1985a). Table 5 lists the wastes stored in the drums found during a RIDEM inspection of the facility on October 30, 1984. Prior to the construction and use of SWMU1, hazardous waste drums were stored in the production area near the former trash compactor (Ciba-Geigy, 1987).

Various wastes including flammable solids, oil-containing PCBs, corrosive solids, distillation sludge, chloroform, polychlorinated organics, flammable liquid and polyimides were stored in SWMU 1. Ciba-Geigy was permitted under RCRA to store up to 50 different, listed hazardous wastes in the drum storage area (EPA, 1986). No information was obtained during the RFA which documented any releases from this area to the environment. On February 11, 1981, EPA and RIDEM personnel inspected the Ciba-Geigy facility and cited violations of the RCRA regulations regarding the hazardous waste drum storage area. In particular, Ciba-Geigy did not transfer in a timely manner hazardous wastes from approximately five leaking containers into containers that were in good condition. Enforcement action taken by EPA Region I

TABLE 5
WASTES STORED IN HAZARDOUS WASTE STORAGE AREA
AT CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND

Waste in Drums	Number of Drums
Hydrocarbon, D001	15
Flammable solid, F003/U239	1
Ammonium thiosulfate	2
Aromatic anhydride, D002, U002	1
Aromatic cyclic imide	1
Organic solvents, process samples	1
Triazole, solvent, F003	2
U169	2
U169, U012	8
Filter media, F005	1
Still sludge, F003	14
Solvent, wet absorbent, D001	5
Halogenated organic solids	4
Aromatic amines	48
TOTAL	105

U.S. EPA Hazardous Waste Codes:

D001 - ignitable
 D002 - corrosive
 F003 - spent nonhalogenated solvents, xylene, acetone
 F005 - spent nonhalogenated solvents, methanol, toluene
 U002 - acetone
 U012 - aniline
 U169 - nitrobenzene
 U239 - dimethylbenzene (xylene)

resulted in the assessment of a civil penalty (EPA, 1981b). Leakage from the containers within the paved area of the drum storage area did not result in a significant threat of exposure.

Surface drainage from the concrete-paved area outside of this SWMU is via Outfall 004 to the Pawtuxet River. Accumulated rainfall or precipitation within the drum storage area was regularly pumped during plant operations to the facility's wastewater treatment plant.

At the time of the VSI, all drums had been removed from the area. The SWMU had been cleaned, and no evidence of any releases was apparent. The potential for exposure to any wastes previously managed in the unit is considered negligible by Versar. No samples were collected from this area during the SV. Versar believes that no further action under the RCRA corrective action program is warranted for this SWMU. ✓

4.2 SWMU 2 - 6,000-Gallon Hazardous Waste Storage Tank

SWMU 2 was located in the tank farm adjacent to the railroad tracks and Building 14 on the Cranston side of the Ciba-Geigy facility. The 6,000-gallon carbon steel tank was used solely for the storage of hazardous waste from 1981 to 1986 (EPA, 1986). The vertical tank was 8 feet in diameter and 17 feet high. The tank was located in a concrete-diked enclosure which was 14 feet 6 inches wide by 19 feet long and 4 feet high and is capable of containing more than 8,000 gallons.

The tank was used to store a bulk waste solvent mixture comprised of varying amounts of toluene, monochlorobenzene, xylene, naphthalite, acetone, isopropanol, heptane, methanol, ethanol, and water. Permitted waste codes for the storage tank included ignitability, corrosivity, spent halogenated solvents, spent nonhalogenated solvents, alcohol, acetone, cresols, methyl ethyl ketone, and toluene (EPA, 1986). The 6,000-gallon hazardous waste storage tank was a RCRA-regulated hazardous waste management unit. The tank was normally filled within two feet of the top (over 5,000 gallons) before transferring the waste solvent out for shipment to an offsite disposal facility.

The contents from this tank were regularly pumped into 10,000-gallon railroad cars. Approximately 260,000 gallons of RCRA-regulated hazardous wastes were loaded per year (EPA, 1986). Railroad tank cars containing hazardous waste remained parked on the railroad spur within the facility for a week at a time. During transfer operations and storage of the waste solvent, no reported releases have been documented from the SMWU.

Drainage from the concrete-diked tank enclosure had previously flowed by way of underground piping to the facility's wastewater treatment plant. This drainage pathway was sealed off according to EPA hazardous waste storage requirements, and water subsequently had to be pumped out of the enclosed area (Ciba-Geigy, 1987).

The 6,000-gallon tank had been removed prior to the VSI. No evidence of releases was apparent in or around this unit at that time. Prior to the SV, all tanks had been removed from the main tank farm and the entire area demolished. During the SV, two subsurface soil samples (SS1, SS2) were collected downgradient of the former tank farm. Figure A in Attachment A shows the sampling locations. Versar believed subsurface infiltration was a likely pollutant migration pathway from this area. Samples were collected using a hand auger at depths ranging from 1 to 3 feet and were analyzed for volatile organics, semivolatile organics and pesticides/PCBs. Sample results are presented in Table 6.

The analysis revealed the low level presence of two volatile compounds, methylene chloride (50 ppb) and acetone (3 to 10 ppb). Toluene was also detected at 8 ppb in sample SS2 split with Ciba-Geigy. Soils in the sampling location were recently disturbed as a result of demolition activities which may partially be responsible for the absence of volatile constituents. Semivolatile organics, particularly polynuclear aromatic hydrocarbons (PAHs) such as fluoranthene, pyrene, chrysene, phenanthrene, and anthracene, were detected in sample SS1 but were not found in sample SS2 which is difficult to explain since these two sampling locations were no more than 15 to 20 feet apart. One reason

TABLE 6
SUBSURFACE SOIL SAMPLING RESULTS^a
CIBA-GEIGY SAMPLING VISIT
June 11, 1987

	Sample Numbers	
	SS1	SS2
<u>Volatile Organics (ppb)</u>		
Methylene chloride	100B	50
Acetone	3J	10J
Toluene	ND(6)	ND(7)
Tetrachloroethylene	ND(6)	ND(7)
Total xylenes	ND(6)	ND(7)
Chlorobenzene	ND(6)	ND(7)
Ethylbenzene	ND(6)	ND(7)
1,2-Dichloroethylene	ND(6)	ND(7)
Vinyl chloride	ND(11)	ND(15)
Benzene	ND(6)	ND(7)
2-Butanone	ND(11)	ND(15)
<u>Semivolatile Organics (ppb)</u>		
2,4-Dimethylphenol	ND(740)	ND(490)
1,2-Dichlorobenzene	ND(740)	ND(490)
2-Chlorophenol	ND(740)	ND(490)
Phenol	ND(740)	ND(490)
Fluoranthene	1,500	ND(490)
Pyrene	1,300	ND(490)
Butylbenzylphthalate	ND(740)	ND(490)
Bis(2-ethylhexyl)phthalate	ND(740)	ND(490)
Chrysene	680J	ND(490)
Di-n-octyl phthalate	ND(740)	ND(490)
Benzo(b)fluoranthene	750	ND(490)
Benzo(k)fluoranthene	ND(740)	ND(490)
Benzo(a)pyrene	510J	ND(490)
Benzo(g,h,i)perylene	300J	ND(490)
Phenanthrene	1,100	ND(490)
Ideno(1,2,3-cd)pyrene	ND(740)	ND(490)
Dimethyl phthalate	1,400	ND(490)
Anthracene	300J	ND(490)
Benzo(a)anthracene	ND(740)	ND(490)
4-Chloroaniline	ND(740)	ND(490)
Dibenzofuran	ND(740)	ND(490)
<u>PCBs (ppm)</u>		
Aroclor - 1254	31	9.3
Aroclor - 1260	ND(0.899)	ND(1.176)

ND() - Compound not detected at level indicated
J - Presence of compound detected, value estimated
B - Compound detected in the QC blank

^aResults are a compilation of the reported analytical data. HSL analytical parameters which do not appear in this table were not detected by the contract laboratory. Analysis were performed by ETC-Toxicon, Baton Rouge, Louisiana on 6/17/87 (VOA), 7/15/87 (B/N/A), and 7/24/87 (pesticides/PCBs).

may be due to the fact that sample SS2 was collected from a slightly deeper subsurface location. In any event, the semivolatile levels encountered are consistent with levels found in an urban environment and do not appear to pose a significant threat, based on RIDEM findings (Section 6.1).

No pesticides were found in the two subsurface samples collected but elevated levels of polychlorinated biphenyls (PCBs) were encountered (Table 6). Versar believes that the presence of these compounds in the soil warrants further investigation which may potentially identify an extensive release. PCB wastes were known to be handled by Ciba-Geigy during plant operations, and are considered highly toxic environmental contaminants.

4.3 SWMU 3 - 7,500-Gallon, 90-Day Accumulation Tank

The 90-day accumulation tank was located in the same tank farm as the 6,000-gallon hazardous waste storage tank and was enclosed (along with three other tanks) by a dike 28 feet, 4 inches wide by 29 feet, 3 inches long and 4 feet high capable of containing approximately 25,000 gallons. The tank itself was constructed of stainless steel and stood vertically at a height of 17 feet and diameter of 8 feet, 6 inches.

The tank was used to store waste flammable liquids from 1985 to the present (EPA, 1986) for a period of less than 90 days at a time. The contents from this tank were regularly pumped into a 10,000-gallon railroad tank car together with wastes from SWMU 2. Approximately 260,000 gallons of non-RCRA-regulated hazardous wastes were loaded per year (EPA, 1986). During transfer operations and storage of the flammable liquids, no reported release have been documented from this SWMU. Potential releases from the main tank farm area were investigated during the SV as discussed in Section 4.2.

Initial evidence which indicated subsurface pollutant migration in the main tank farm area was obtained during the VSI. The headspace

within a manhole accessing subsurface drainage directly south of the main tank farm revealed the potential presence of volatile organic compounds (60 ppm) as recorded by a portable photoionization unit. Upon venting of the manhole, levels dropped to 4 ppm accordingly.

4.4 SWMU 4 - Trash Compactor

The trash compactor was formerly located north of Building 27 adjacent to railroad tracks and sat on a concrete base, 21 feet wide by 36 feet long. The capacity of the trash compactor was 55 cubic yards. Cardboard, packaging material, washed fiber drums, filters, and waste paper were disposed of in this compactor from 1972 until the plant ceased operations in May 1986 (EPA, 1986).

Compacted materials were drummed and taken to a sanitary landfill or incinerated. The trash compactor area was concrete-lined and drainage from the compactor flowed to the facility's industrial waste treatment plant. No process wastes were reportedly put into the compactor (Ciba-Geigy, 1985a). There have been no documented releases to the environment from this area. Few remnants of this SWMU exist at its former location. The potential for exposure to any wastes previously managed in this unit is considered negligible by Versar. No samples were collected from the former trash compactor area during the SV. Versar believes that no further action is warranted for this SWMU.

4.5 SWMU 5 - Former Silt Pile

In 1971, a waste pile of silt dredged from the Pawtuxet River was landfilled on Warwick property belonging to Geigy Chemical Corporation. Approximately 6,630 cubic yards of this material was dredged by Ciba-Geigy from the river bottom near the facility's original coffer dam wastewater outfall and piled onsite (in the far northeast corner of the Warwick property adjacent to the river) for a number of years to dewater. During the period of December 13-23, 1976, this material was removed from the site. In 1977, as part of the flood plain restoration

required under the Wetlands Act, this area was brought back to grade and no further soil removal was done.

No analytical data regarding waste characteristics of the silt pile were found during the PR. The silt was dredged from the river bottom because it was believed to contain various constituents associated with untreated process wastewater which had been discharged to the river through the facility's original wastewater outfall (Ciba-Geigy, 1987a). The use of this outfall, located just upstream of the plant's main vehicular bridge, was discontinued upon completion of the wastewater treatment plant. It is not known whether this dredging resulted in the complete removal of contaminants in the underlying river sediments.

It is known, however, that organic pollutants from wastewater discharge and urban runoff are found in river water and are also incorporated into the underlying sediments (Quinn et al., 1985). Specifically, with respect to the Pawtuxet River, environmentally stable contaminants with low water solubilities, such as compounds that were produced by Ciba-Geigy, tend to accumulate in estuarine sediments and have been found in Narragansett Bay sediments (Junglaus et al., 1978; Lopez-Avila & Hiles, 1980). Although these studies were performed after the dredging of the river, they indicate that the silt pile probably contained hazardous constituents and may have contributed to a release from the facility.

During the VSI, the location of the former silt pile was examined. Most of the area was overgrown with vegetation (mostly grasses). Soils within the SWMU area were disturbed just below the surface and monitored with a photoionization unit. Readings were 1 to 6 ppm above background levels, which indicated the potential presence of residual contamination. Migration pathways from this unit include surface runoff and subsurface infiltration.

One composite surface soil sample (SS3) (formed from 4 discrete samples) and one ground-water sample (GW8) were collected from the former silt pile area during the SV. Figure A in Attachment A shows the sampling locations. Analysis of the soil sample revealed the elevated presence of antimony (137 ppm), arsenic (31 ppm), barium (622 ppm), cadmium (14 ppm), chromium (407 ppm), manganese (971 ppm), mercury (38 ppm), zinc (11,000 ppm), and PCBs (3.2 ppm) relative to background concentrations (Table 7). Additionally, analysis of the split soil sample by Ciba-Geigy revealed the presence of toluene (7 ppb), various PAH's typically associated with an urban environment, heptachlor epoxide (1.3 ppm), PCBs (59 ppm), chromium (97 ppm), and zinc (2,830 ppm).

These analyses indicate that a potential for exposure exists primarily to contaminants in the surface soils due to heavy metal and PCB content. Access to this SWMU area is unrestricted. The potential of exposure to contaminants in the subsurface cannot be determined from the current information available. Versar believes that this area warrants further investigation to define the extent of contamination and determine the potential threat to human health or the environment based on the data collected.

Analysis of EPA's ground-water sample showed lead, manganese, and zinc present at 0.00518 ppm, 0.018 ppm and 5.36 ppm, respectively. Organic parameters detected were typically at levels below specified method detection limits and do not appear to be a significant concern. These results may be due to the apparent upgradient location of the ground-water pipe from which the sample was collected. Ground-water sample results are discussed in Section 6.3.

4.6 SWMU 6 - Zinc Oxide Pile

In the late 1960s, a pile of soil containing zinc oxide residues from a broken rail car was placed between the end of the pavement and a guardrail which borders the Pawtuxet River north of the former outside drum storage area. A total volume of 25 cubic yards of material was piled on the ground for a couple of months before being transferred to

TABLE 7
SILT PILE SOIL SAMPLING RESULTS^a
Ciba-GEIGY SAMPLING VISIT
June 11, 1987

	EPA Sample SS3	Ciba-Geigy Split Sample	EPA Background Sample BG1	Ciba-Geigy Background Sample
<u>Metals (ppm)</u>				
Antimony	137	ND	19	ND
Arsenic	31	ND	3.5	ND
Barium	622	NA	[40]	NA
Beryllium	ND(2.2)	0.6	ND(0.49)	0.3J
Cadmium	14	ND	1.2	ND
Chromium	407	97	14	15
Iron	64,500	NA	10,400	NA
Lead	5.2	34J	ND(0.40)	45J
Magnesium	5,760	NA	1,490	NA
Manganese	971	NA	173	ND
Mercury	38	0.83	2.7	ND
Nickel	ND(30)	ND	[8.3]	ND
Selenium	[1.5]	ND	[0.25]	ND
Silver	ND(8.0)	ND	ND(1.8)	ND
Vanadium	101	NA	32	ND
Zinc	11,000	2,830J	200	217J
<u>Volatile Organics (ppb)</u>				
Toluene	ND(6)	7	ND(5)	9
Tetrachloroethylene	ND(6)	ND	ND(5)	ND
Total xylenes	ND(6)	ND	ND(5)	ND
Chlorobenzene	ND(6)	ND	ND(5)	ND
Vinyl chloride	ND(11)	ND	ND(11)	ND
Benzene	ND(6)	ND	ND(5)	ND
<u>Semivolatile Organics (ppb)</u>				
Naphthalene	ND(9,500)	150J	ND(3,500)	72J
2-Nitroaniline	ND(9,500)	450	ND(3,500)	ND
Acenaphthylene	ND(9,500)	230J	ND(3,500)	430
Phenanthrene	ND(9,500)	420	4,200	1,800
Anthracene	ND(9,500)	150J	1,200J	470
Fluoranthene	ND(9,500)	1,500	6,100	4,000
Chrysene	ND(9,500)	640	3,700	ND
Di-n-octyl phthalate	ND(9,500)	450	ND(3,500)	ND
Benzo(b)fluoranthene	ND(9,500)	1,900	3,400J	4,700

(CONTINUED)

TABLE 7
SILT PILE SOIL SAMPLING RESULTS^a
Ciba-GEIGY SAMPLING VISIT
June 11, 1987
(Continued)

	EPA Sample SS3	Ciba-Geigy Split Sample	EPA Background Sample BG1	Ciba-Geigy Background Sample
Semivolatile Organics (ppb) (continued)				
Benzo(a)pyrene	ND(9,500)	800	2,100J	1,900
Butylbenzylphthalate	ND(9,500)	150J	22,000	5,800J
PCBs (ppm)				
Aroclor - 1254	3.2	ND	ND(0.86)	ND
Aroclor - 1260	ND(0.92)	59	ND(0.001)	ND
Pesticides (ppm)				
Heptachlor epoxide	ND(0.046)	1.3	ND(0.043)	0.12
Delta-BHC	ND(0.046)	ND	ND(0.043)	0.12

NA - Not analyzed.

ND() - Compound not detected at level indicated. Detection limits were not available for Ciba-Geigy analyses.

J - Presence of compound detected, value estimated.

[] - Result is a value greater than or equal to instrument detection limit but less than contract required detection limit.

^aEPA results are a compilation of the reported analytical data. HSL analytical parameters which do not appear in this table were not detected by the respective contract laboratories. Metals analyses were performed by Cambridge Analytical Associates, Boston, Massachusetts on 7/20/87. Organic analyses were performed by ETC-Toxicon, Baton Rouge, Louisiana on 6/17/87 (VOA), 7/16/87 (B/N/A), and 7/25/87 (pesticides/PCBs).

another rail car. A major part of the zinc oxide pile still exists onsite. The pile is approximately 7 feet wide by 50 feet long, and 2 feet high, and consists of soil and lumps of zinc oxide. Zinc oxide is not a RCRA-regulated waste.

Surface runoff from the area discharges to the river by way of Outfall 003. Releases from this unit and the potential for exposure are not major concerns because of the innocuous nature of the pile material. No samples were collected from the SWMU during the SV. Versar believes that no further action is warranted for this unit.

4.7 SWMU 7 - Chlorosulfonic Acid Spill Area

A 500 gallon chlorosulfonic acid spill from a trailer truck occurred in 1961 and is estimated to have covered an area 10 feet by 20 feet by 1 foot deep within the area bordered by the railroad spur adjacent to the former main tank farm. Chlorosulfonic acid may be described as a hazardous waste under RCRA due to its corrosive characteristic (40 CFR 261.22). The area covered by the spill was reportedly neutralized and subsequently excavated for the tank farm foundations (Ciba-Geigy, 1985a). It is unknown what, if anything, was used to neutralize the area or how much soil was removed. Evidence of release has not been documented since the area was previously covered by the tank farm. Similarly contaminant migration and exposure potentials have not been determined.

Since no analytical data is available regarding this release which has been identified by Ciba-Geigy, Versar believes it is the facility's responsibility to determine the status and extent of contamination within this SWMU as part of a further investigation. This investigation should include the general collection of surface soil, subsurface soil, and ground-water samples in the area surrounding the former main tank farm.

4.8 SWMU 8 - Potassium Ferrocyanide Spill Area

Blue-stained soil, resulting from a spill of an unknown quantity of potassium ferrocyanide (Prussian blue) which occurred around 1956, was

excavated for tank farm foundations in 1961 (Ciba-Geigy, 1985a). Information regarding the source of the spill was not found during the PRE. Potassium ferrocyanide may be described as a hazardous waste under RCRA due to its reactivity characteristic (40 CFR 261.23). At least 306 cubic yards of soil were removed and new fill compacted in place for the storage tank foundations. During the installation of the plant wastewater piping system in the 1960s, another quantity of blue-stained soil was excavated from an area between Building 10 and 24 (Ciba-Geigy, 1985).

At the time of the VSI, facility representatives indicated that the Prussian blue was only found in one area between Building 27 and former Building 24 (Ciba-Geigy, 1987). Evidence of release has not been documented, since this area has been paved. Similarly, contaminant migration and exposure potential have not been documented. Since no analytical data is available regarding this release which has been identified by Ciba-Geigy, Versar believes it is the facility's responsibility to determine the exact location of the SWMU as well as the status and extent of potential contamination as part of a further investigation.

4.9 SWMU 9 - Wastewater Pipeline Break (January 12, 1982)

SWMU 9 was actually part of the Ciba-Geigy wastewater treatment process. On January 12, 1982, a break in the main raw waste transfer line on the southerly side (Warwick property) of the pipe bridge leading to the wastewater treatment plant resulted in the discharge of concentrated process wastewater to the Pawtuxet River. According to Ciba-Geigy, measures were taken immediately to reduce the flow in the line and initiate repairs. The approximate volume discharged, over a four-hour period, was 24,000 gallons (Ciba-Geigy, 1982b). The spill to the soil surrounding the pipe break was diverted to the facility's 004 outfall primarily used for the discharge of raw material storage drum cooling spray in the summer as well as storm water runoff (Section 5.2).

The spill resulted in a period of noncompliance with the facility's National Pollutant Discharge Elimination System (NPDES) permit due to the direct discharge of process wastewater to the river. Analytical data regarding the concentrations of contaminants in the raw waste being discharged was not found during the PR. The pH of the river upstream and downstream of the discharge was checked by Ciba-Geigy and both readings were 6. The pH of the discharge itself varied between 4 and 12 during this period (Ciba-Geigy, 1982b). Influent to the wastewater treatment plant typically would contain various amounts of halogenated and nonhalogenated solvents, volatile organic compounds, and heavy metals (i.e., materials used in the chemical manufacturing processes).

During the VSI, the pipeline break area was examined. The entire pipeline had been removed, but the guardrail that supported the pipeline remained in place, revealing the former layout of the wastewater line. The area surrounding the point of the pipeline break revealed no evidence of past release. Apparently, all of the wastewater discharged during the break flowed to the river.

No samples were collected from this unit during the SV. No information regarding any residual contamination in the area exists. Since no analytical data is available regarding this release which has been identified by Ciba-Geigy, Versar believes it is the facility's responsibility to determine the status and extent of contamination within the SWMU as part of a further investigation. This investigation should include the collection of surface and subsurface soil samples in the general area surrounding the former pipeline break. Potential contaminant migration is via surface runoff to the river. Potential exposure pathways include contact with contaminated soils or the river.

4.10 SWMU 10 - Wastewater Pipeline Break (September 7, 1983)

SWMU 10, which was also part of the Ciba-Geigy wastewater treatment process, was identified as a result of a rupture in an underground wastewater line feeding one of three equalization tanks at the wastewater

treatment plant. Neutralized pretreated wastewater from the equalization tanks passed through the plant's clarifier before being discharged to the Cranston POTW. The ruptured pipeline was located approximately 5 feet below the ground surface. During a period which lasted about 1.5 hours, beginning around 8:00 a.m. on September 7, 1983, approximately 50,000 gallons of pretreated wastewater was lost to the Pawtuxet River. Cavitation of the soils around the ruptured line allowed the discharge to reach the ground surface, from where it flowed east following natural drainage before being diverted to the facility's 001 outfall. Outfall 001 was a duffysion type outfall located on the bottom of the river used primarily for the discharge of pretreated effluent from the treatment plant (Ciba-Geigy, 1983e).

Ciba-Geigy reported that the pH of the wastewater was 8.5 and contained 75 ppm acetone (31 pounds), 108 ppm isopropyl alcohol (45 pounds), 4 ppm xylene (1.7 pounds), 17 ppm toluene (7 pounds), 0.6 ppm zinc (6.25 pounds), and 0.3 ppm nitrobenzene (6.125 pounds) (Ciba-Geigy, 1983e). Surface water samples taken from the Pawtuxet River by the RIDEM on the day of the spill revealed the presence of toluene (2 ppm) downstream and (1.1 ppm) upstream (RIDEM, 1983a). According to Ciba-Geigy, the discharge was stopped immediately upon identification of the pipe break. Impact from the spill primarily resulted in contamination of the Pawtuxet River and the soils at the site of the pipe rupture.

During the VSI, the pipeline break area was examined. All structures and facilities at the wastewater treatment plant had been removed. Soils had been excavated, backfilled, and graded. The area surrounding the point of the pipeline rupture and the drainage pathway from the SWMU to the river revealed no evidence of past release.

No samples were collected from this unit during the SV. No information regarding any residual contamination in the area of the pipeline break exists. Since no analytical data is available regarding this release which has been identified by Ciba-Geigy, Versar believes it

is the facility's responsibility to determine the status and extent of contamination within this SWMU as part of a further investigation. This investigation should include the collection of subsurface soil and ground-water samples in the general area of the pipeline break and downgradient of the SWMU area. Contaminant migration is potentially via surface runoff to the river or through the subsurface to the ground water. Potential exposure pathways include contact with the river or contaminated soils.

4.11 SWMU 11 - Building 11 Area

SWMU 11 is the site of the former production Building 11 which was razed in October 1983. Analysis of ground-water samples in the vicinity of the Building 11 sump at the time of demolition indicated a low level presence (<1 ppm) of toluene. Documentation of ground-water tests performed at that time, however, cannot be produced by Ciba-Geigy. The calculated loss, by Ciba-Geigy, of toluene is between 9 and 90 pounds over a two-year period (Ciba-Geigy, 1985a). The sump was located underground, had a capacity of 300 gallons, and was constructed of concrete. The sump operated as an overflow wier and contained a constant amount of water, which was normally pumped to the treatment plant. The area of the former Building 11 is now paved.

Toluene was a major organic solvent used in Ciba-Geigy's chemical manufacturing process with well over 1,000,000 pounds consumed annually. The presence of toluene in the ground water indicates a release to the environment which may not be specific to this one area of the site. Toluene is listed as a hazardous waste under RCRA, F005 (40 CFR 261.31), U220 (40 CFR 261.33) and may be considered hazardous due to its ignitability characteristic, D001 (40 CFR 261.21).

Ground-water samples were collected at Ciba-Geigy during the SV. The majority of these samples were obtained from the former production area including areas adjacent to and downgradient of former Building 11. Ground-water sampling results are discussed in detail in Section 6.3. In

general the results indicate that the ground water beneath Ciba-Geigy on the Cranston side of the facility contains various volatile constituents, including toluene, which warrant further investigation through a hydrogeologic study and additional sample collection to determine the full extent of contamination.

5.0 OTHER AREAS OF CONCERN

There are several other areas of concern at the Ciba-Geigy Cranston plant which were not identified as SWMUs in the preceding section, but which may be associated with or contribute to releases from the facility to the surrounding environment. These areas will be discussed separately in this section.

5.1 Wastewater Treatment Plant

The biological wastewater treatment plant at the Ciba-Geigy facility, completed in 1972, was designed to control the large volume of process wastewater generated during manufacturing operations and minimize the environmental impact of water discharges to the Pawtuxet River. Ciba-Geigy was first issued a NPDES permit (RI 0001171) in 1974 and operated the wastewater treatment plant under U.S. EPA Clean Water Act limitations from November 1975 to July 1983.

One stipulation in the permit was to terminate the direct discharge of treated process wastewaters by the tie-in of the Ciba-Geigy treatment system with the city of Cranston's expanded wastewater treatment plant (POTW) by July 1983. After tie-in to the city system, plant waste was pretreated, analyzed, and the discharge to an adjacent city pumping station controlled. Ciba-Geigy shut down its trickling filter and final biological treatment occurred at the Cranston POTW. Prior to the tie-in, a number of releases from the wastewater treatment plant in violation of the NPDES permit have been documented. EPA did not refer these permit violations for enforcement action because of Ciba-Geigy's planned tie-in to the Cranston POTW to eliminate the discharge of pretreated wastewaters to the Pawtuxet River (EPA, 1983).

On February 2 and 3, 1983, Ciba-Geigy discharged 157 pounds and 50 pounds, respectively, of zinc although the permitted maximum was 12.5 pounds per day. The high level of zinc resulted from start up problems with one of the wastewater plant trickling filters (Ciba-Geigy, 1983).

On February 15 and 16, 1983, Ciba-Geigy discharged 18,550 pounds and 22,500 pounds, respectively, of biological oxygen demand (BOD) although the permitted maximum was 16,000 pounds per day. These discharges were attributed to losses of isopropyl alcohol and glycol to the wastewater treatment system (Ciba-Geigy, 1983a).

* On March 1, 1983, Ciba-Geigy discharged 100 pounds of phenol although the permitted maximum was 62.5 pounds. This discharge was speculated as a loss of phenol to the wastewater treatment system during dismantling of a production building (Ciba-Geigy, 1983a).

On April 18 and 19, 1983, 260,000 gallons of wastewater with a pH of 4.5 were discharged as a result of a failure to check the pH of an equalization tank prior to discharge. NPDES permit requires that the pH of its discharge be not less than 6.0 nor greater than 0.5 units above the pH of the intake water (Ciba-Geigy, 1983b).

* During March and April 1983, the presence of chloroform was detected in the effluent outfall 001. In March, 0.77 pounds/day and in April, 1.5 pounds/day were being discharged. The NPDES permit did not authorize chloroform to be discharged from the facility (RIDEM, 1983).

According to RFA guidance supplied by U.S. EPA, the definition of a SWMU includes wastewater treatment units. Operation and maintenance problems which led to the above documented releases as well as the large volume of waste material that flowed through the wastewater treatment plant at Ciba-Geigy indicate that this area should be a principal concern regarding the facility assessment under the corrective action program. The current status of the wastewater treatment plant and the impact to soils surrounding the plant as a result of releases requires further investigation.

* There reportedly was an area to the right of the wastewater treatment plant, the former site of the trickling towers, where there was no vegetation (EPA, 1986a). The trickling towers were in use from 1970-1983 and there were occasional sump overflows. Influent to the

trickling filter where biological degradation occurred was sampled by EPA in 1983 (EPA, 1983a). Table 8 reveals some of the compounds present in the influent. Releases to the soil surrounding the towers would potentially contain these compounds.

5.2 Pawtuxet River

The Pawtuxet River is probably the most sensitive environmental area with respect to releases from the Ciba-Geigy facility. Discharges to the river occurred primarily under NPDES Permit No. RI 0001171 from four outfalls, two located on the northern bank of the river and two on the Southern bank (Figure 4) as indicated in Table 9.

Figure 5 is a schematic of water flow which leads to these outfalls at the Ciba-Geigy facility. The majority of flow to the Pawtuxet River was via effluent outfall 001 from the wastewater treatment plant. Two other discharge points for certain emergency discharge are known to have been covered under the original NPDES application but were eliminated from the current permit since these discharge points were not in use (Ciba-Geigy, 1973). The exact locations of these other discharge points were not determined during the RFA.

A number of additional incidents have been documented which resulted in routine or uncontrolled releases to the Pawtuxet River. On May 22, 1974, during an investigation of an oil spill at the Atlantic Tubing and Rubber Co., a discharge from an 18-inch storm drain, located on Ciba-Geigy property, about 10 feet east of the property fence was noted (RIDEM, 1974). The discharge was flowing at less than 1 gpm and was leaving a light film on the river. Subsequent analysis of the discharge revealed the presence of acetone, isopropanol, ethanol, and toluene. When questioned about the discharge, Ciba-Geigy could not determine the source since this drainage system was no longer in use (RIDEM, 1974).

From August 28, 1975, to September 2, 1975, discharge of cooling tower water at Outfall 002 averaged approximately 1.4 million gallons per

TABLE 8
PARTIAL RESULTS OF SAMPLING INFLUENT TO TRICKLING FILTER
AT THE CIBA-GEIGY FACILITY, CRANSTON, RHODE ISLAND
(EPA, 1983a)

	Sample Concentration (mg/l)	
<u>Purge and Trap</u>	<u># 72588^a</u>	<u># 72589^b</u>
Acetone	10.5	23.5
Isopropanol	66.5	65.5
2-chloropropane	.74J	.93J
Chloroform	.16	.17
Isopropyl ether	.30	.34
Methylcyclohexane	.18	.17
Toluene	**	19
Ethyl benzene	.60	.64
Xylene isomers	4	4.3
<u>Acid Extraction</u>	<u># 72588</u>	
	<u>Column A</u>	<u>Column B^c</u>
2-nitrophenol	.05	.19
Phenol	.13	.53
2,4-dimethylphenol	.007	.028
2,4-dichlorophenol	.004	.016
p-(1,1-dimethylpropyl)phenol	2.1J	8.65J
2,4-di-tert-amyl phenol	3.5J	14.5J
p-cumyl phenol	1.9J	7.9J
2-(hydroxy-ar-pentylphenyl)- ar-pentylbenzotriazole	1.15J	4.8J
<u>Base Neutrals</u>	<u># 72588</u>	
Methylchlorobenzene	.057J	
Alpha-methylstyrene	.031J	
Aniline	.39J	
Nitrobenzene	.325	
Naphthalene	.03	
1,2-benzenediamine	.20J	
Acenaphthylene	.003J	
Bis-(2-ethylhexyl)-phthalate	1.7	

J = No standards available. Estimate value.

** = Saturation.

^a = Sample 72588 received for analyses on April 4, 1983.

^b = Same as 72588, different preservative

^c = In Column B the concentrations are based on an efficiency of 24 percent for d5-phenol.

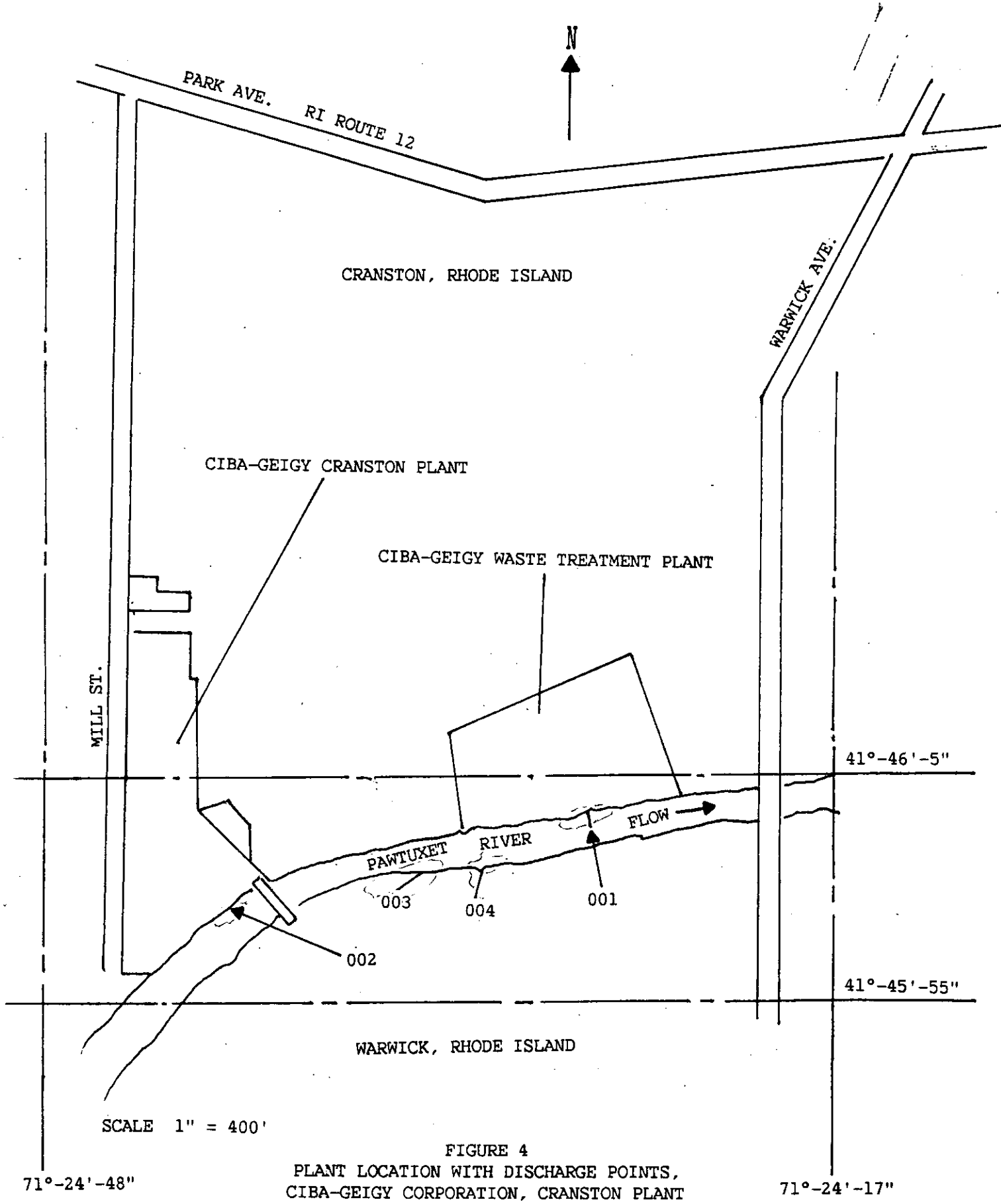
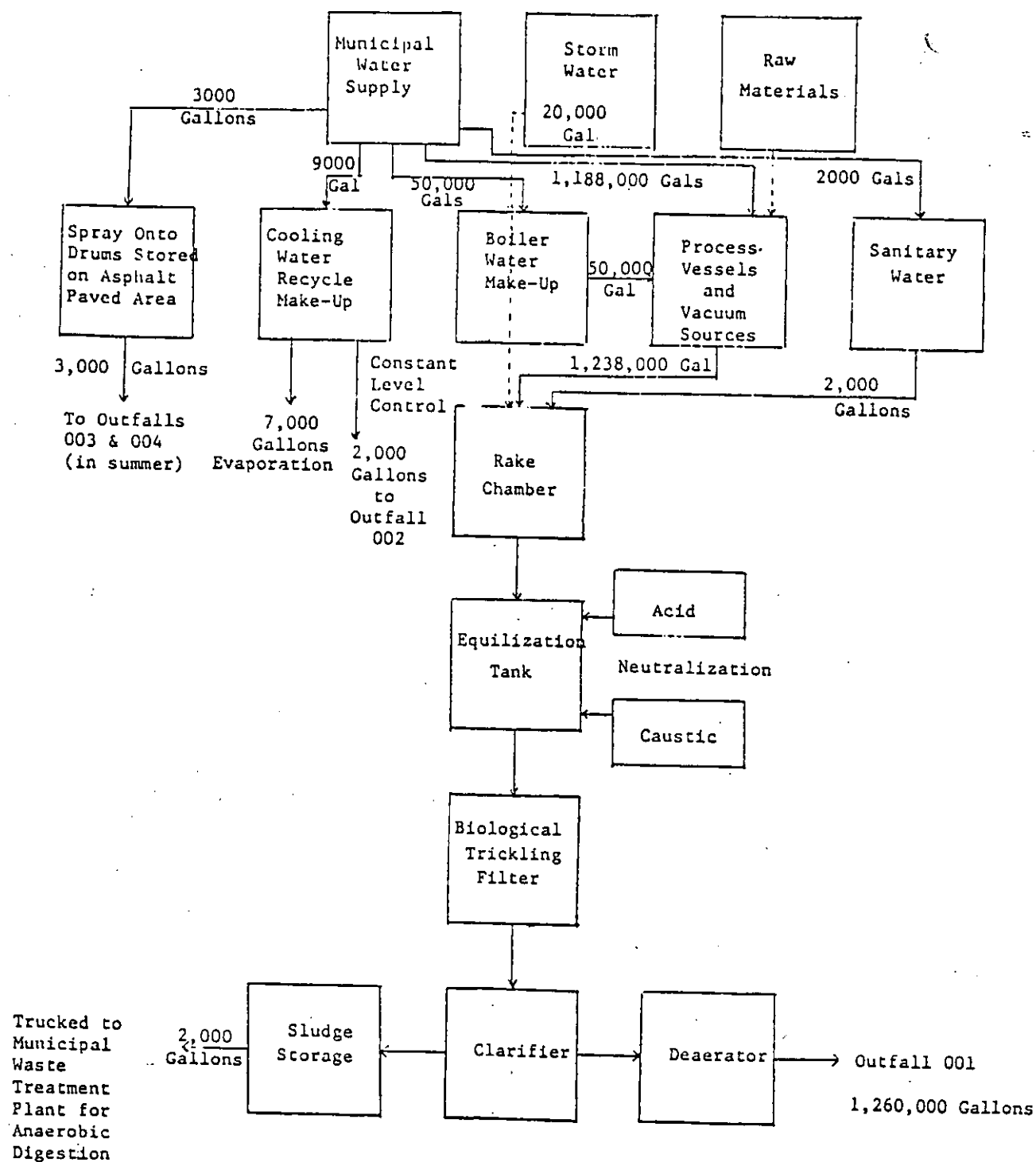


FIGURE 4
PLANT LOCATION WITH DISCHARGE POINTS,
CIBA-GEIGY CORPORATION, CRANSTON PLANT

TABLE 9
PAWTUXET RIVER OUTFALL LOCATIONS,
CIBA-GEIGY CORPORATION, CRANSTON, RHODE ISLAND
(EPA, 1983b)

Outfall No.	Operation	Location
001	Process water including boiler feed makeup, storm water and sanitary water	41° 46' 00"N 71° 24' 25"W
002	Cooling water overflow, direct cooling water	41° 45' 77"N 71° 24' 42"W
003 and 004	Water spray for cooling drums in summer	41° 45' 84"N 71° 24' 33"W



EPA NO. R.I. D001194323

FIGURE 5
SCHEMATIC OF WATER FLOW, CIBA-GEIGY CORPORATION,
CRANSTON, PROVIDENCE COUNTY, RHODE ISLAND
(Ciba-Geigy, 1981a)

day in excess of the maximum flow limitation of 50,000 gallons per day allowed for this discharge point. The excess flow was required to maintain cooling water temperature while the forced air fan in the cooling tower was repaired (Ciba-Geigy, 1975).

On January 23, 1980, approximately 500 gallons of raw waste water trickled into the Pawtuxet River from the trash rake chamber, in violation of the NPDES permit. The effluent trash rake failed, allowing debris to build up causing the water level in the chamber to rise enough to trickle into the river (Ciba-Geigy, 1980).

On June 17, 1980, a chemical spill to the Pawtuxet River occurred when a seal ruptured on a reactor vessel, causing its contents to be discharged up a stack vent. From the stack vent, the chemical was sprayed onto a yard area where it drained through a channel to the river. The incident involved several hundred pounds of a plastic additive, consisting of organics, solvents, and zinc with the primary constituent being naphthalite (RIDEM, 1980).

On August 3, 1980, an estimated 25 gallons of "special naphthalite" was lost to the river as a result of a recent interconnection of two chemical transfer lines and the failure of an operator to properly close a series of valves. Alcohol was subsequently forced into a storage tank containing special naphthalite causing the contents to be discharged through the tank's vent and upon the roof of Building 21. From there the chemical flowed to roof drains which discharge directly to the Pawtuxet River. Spilled product remaining on the roof was drummed and disposed of offsite (RIDEM, 1980a).

In November 1981, U.S. EPA Region I granted Ciba-Geigy a temporary forbearance of enforcement of the maximum discharge requirement contained in the NPDES permit for outfall 002 (noncontact cooling water) during the month of December in order for the facility to make repairs to the cooling tower (U.S. EPA, 1981). This bypass of the cooling tower by Ciba-Geigy exceeded the one month time limitation stipulated in the

forbearance. Results from samples collected by RIDEM indicated that the temporary discharge did not have an adverse effect on the water quality of the river (RIDEM, 1982).

During the period of June 7-8, 1982, water being pumped from the building sumps, as a result of a flood in the Pawtuxet River basin, filled the wastewater treatment plant's equalization tank, diluting wastewater in the system. An overflow of this diluted wastewater occurred on June 8, causing a total of 360,000 gallons of wastewater of pH 9 to be released to the flooded river (Ciba-Geigy, 1982).

On April 13, 1983, raw wastewater of pH 10.5 was discharged to the Pawtuxet River over a 2.5 hour period. An estimated 11,500 gallons was lost as a result of damage to the raw waste pipe during construction at the wastewater treatment plant in preparation for the tie-in with the Cranston POTW (Ciba-Geigy, 1983c). This wastewater represented typical discharge and did not result in a permit violation.

5.3 Tank Farms

Ciba-Geigy maintained three aboveground tank farms at the Cranston facility; tank farm over the river (Tank Farm A), Building 21 tank farm (Tank Farm B), and the main aboveground tank farm (Tank Farm C) and 10,000-gallon tank along Mill Street (Figure 2). Except for Tank Farm C, which contains SWMU 2 and SWMU 3 (hazardous waste), all tanks were used for bulk solvent or raw material storage. The total number and capacity of the tanks utilized was not determined during the RFA, but at least 40 tanks were known to contain the following materials:

- Sulfuric Acid
- Hydrochloric Acid
- Nitric Acid
- Caustics
- Para-cresol
- Methyl acrylate
- Phenol
- Styrenated Phenol
- Methanol
- Isopropanol

- Acetone
- Toluene
- Mineral Spirits
- Monochlorobenzene

Clean up and demolition at the Ciba-Geigy facility has included Tank Farms A, B, and C. All material stored in the tanks transferred from the tanks which were subsequently cleaned and removed.

During facility operations, the tank farms were designed to drain to the wastewater treatment plant. Since none of the aboveground tanks contained fuel oil, Ciba-Geigy was not required to have a formal Spill Prevention Control and Countermeasure (SPCC) Plan pursuant to 40 CFR 112 of the Clean Water Act (Ciba-Geigy, 1985b). Containment and diversion of spilled material from the tank farms was documented during the following incident involving para-cresol.

On May 25, 1983, a spillage of the raw material, para-cresol, occurred from the 10,000-gallon outdoor storage tank at the main tank farm. The entire spill (approximately 72,000 pounds or 8,000 gallons) was completely contained in two equalization tanks at the facility's wastewater treatment plant (Ciba-Geigy, 1983d). The flow to the wastewater equalization tanks, however, was not controlled and resulted in the contamination of about 1,750,000 gallons of other plant wastewater. Resulting concentrations of para-cresol were estimated to be 0.66 percent in one tank containing about 1,250,000 gallons, and 0.11 percent in the other tank containing about 500,000 gallons.

Ciba-Geigy was required to bring in activated carbon absorption units on a temporary basis to provide the additional treatment necessary to maintain compliance with the state discharge limitations for para-cresol (EPA, 1983). Para-cresol was used by Ciba-Geigy in the manufacture of tinuvin-P, an ultraviolet stabilizer of plastics and normally found in Ciba-Geigy's wastewater in low quantities, but was not regulated by the company's NPDES permit. The discharge limit, approved by RIDEM and based on Toxic Substances Control Act (TSCA) regulations, was set at 1,000 pounds of para-cresol per day (Cranston, 1983).

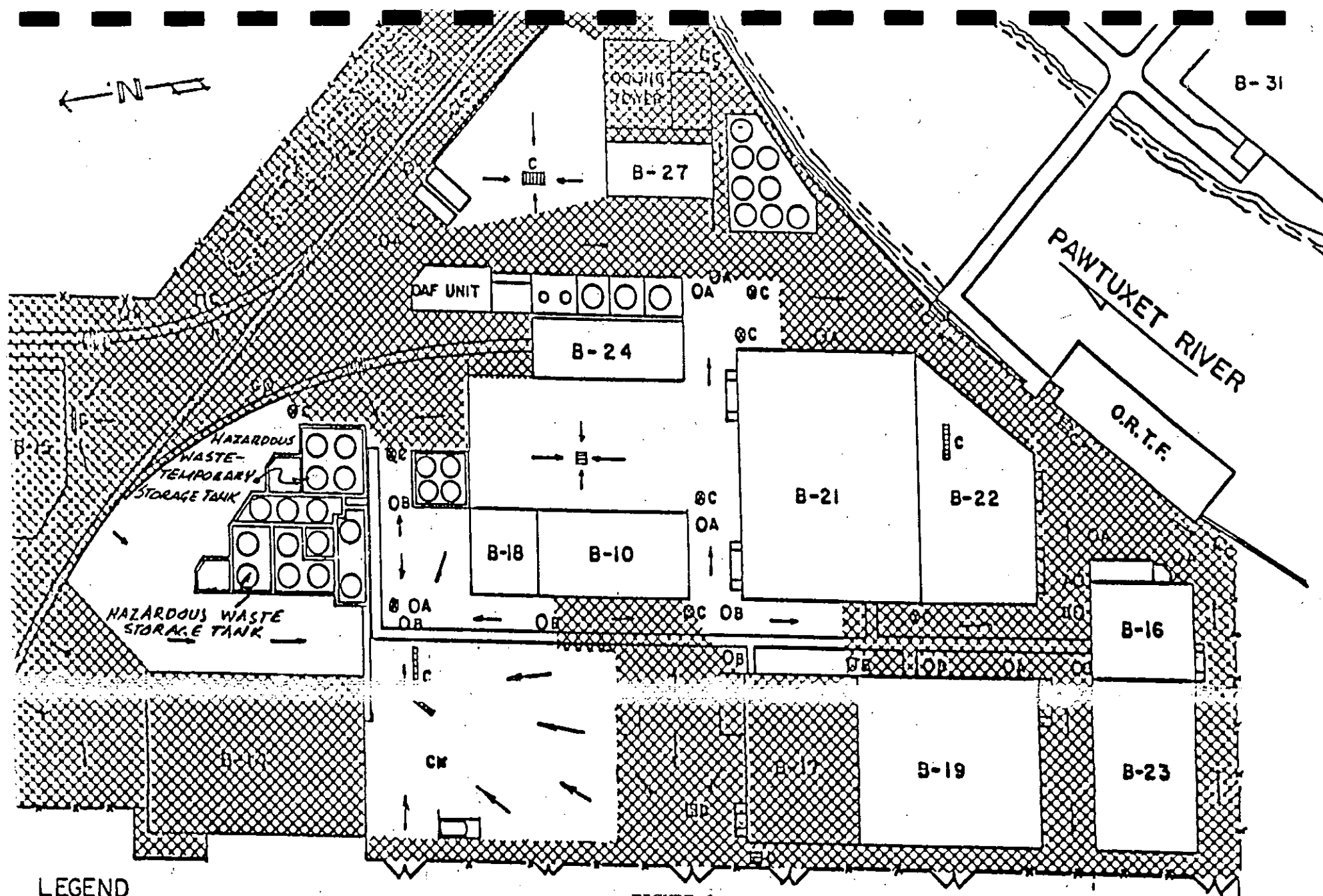
In order to meet the discharge limit, Ciba-Geigy had to reduce flow to the wastewater plant while treatment was taking place, requiring Ciba-Geigy to shut down production for five days. Para-cresol is a listed hazardous waste, U052, under RCRA (40 CFR 261.33) and is considered a toxic material. Its impact on the environment was not determined upon release from the treatment plant. The incidence of other spills from the tank farms, and their impact on the environment was not found during the PR.

In addition to the aboveground tank farms, Ciba-Geigy maintained an underground raw material storage tank farm, underground fuel oil and gasoline tanks, a quarantine tank farm, and distillation column feed storage tanks. The cleaning and removal of all these tanks is included in Ciba-Geigy's plan for closing the site.

During the VSI, the former location of Ciba-Geigy's underground bulk solvent and raw material storage tanks, northwest of the production area adjacent to residential property in Cranston, was examined. Eight 10,000-gallon storage tanks previously used to store toluene, acetone, isopropyl alcohol, and other solvents had been removed from this area. Soils around the tanks had been excavated, and the entire area was backfilled with a sandy material. The location of one underground gasoline tank and two underground fuel oil tanks was also found during the VSI. These tanks, which have remained in place, are situated near the former Building 11 area. Releases from these tanks have not been identified during the RFA, although ground water beneath the former production area has been shown to be contaminated (Section 6.3).

5.4 Underground Pipelines, Sumps, and Sewer Lines

Throughout the Ciba-Geigy facility there are a series of underground pipelines, sumps, and sewer lines interconnected and configured to carry various materials to different locations within the plant. The majority of underground drainage system pipelines carry storm and industrial water to the wastewater treatment plant (Figure 6).



LEGEND

- A-MANHOLE WITH SOLID COVER.
- B-MANHOLE WITH HOLES IN COVER.
- C-MANHOLE WITH OPEN GRATE COVER.

DRAINS TO RIVER.

DRAINS TO EFFLUENT TREATMENT PLANT.

FIGURE 6
CRANSTON PLANT WATER DRAINAGE SYSTEM
STORM AND INDUSTRIAL DRAIN
(Ciba-Geigy, 1985b)

A preliminary assessment (PA) of the facility conducted by EPA Field Investigation Team (FIT) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) reported that a drainage system which was formerly used to discharge wastewater into the Pawtuxet River exists beneath the Ciba-Geigy facility. Although this system is no longer in use, it is heavily contaminated with oil (NUS, 1983). A site investigation (SI) was scheduled to be performed in conjunction with the PA to determine if significant amounts of chemicals were migrating into the environment surrounding Ciba-Geigy. The SI was cancelled due to low EPA priority and lack of a hazard ranking system (HRS) score used to determine if further action is needed at a site.

In addition to drainage system pipelines, other underground lines at Ciba-Geigy include underground tank farm lines, cooling tower water lines, industrial raw waste and sample lines, raw waste sumps, fuel and gasoline pipelines, caustic system lines, and sulfuric acid system lines. All underground piping systems are scheduled to be cleaned but will remain in place after the plant has closed.

Information from Ciba-Geigy was received by EPA Region I regarding the location of underground pipelines, sumps, and sewer lines throughout the facility. No information was available regarding releases from these underground lines. Versar believes, however, that contaminants present in the ground water beneath the former production area may potentially have originated from underground sources.

5.5 Process Buildings

All process buildings and process systems within the buildings were scheduled to be cleaned before dismantling or demolition began. Residual contamination remaining in these buildings after manufacturing operations ceased may have included, but is not limited to, asbestos-containing insulation, zinc sludge, and PCB-contaminated surfaces.

Within process buildings, various pipe systems and equipment, wall panels, and roofs were identified as places with insulation containing asbestos. The removal and disposal of asbestos-containing material was required by Ciba-Geigy before demolition of any building began. Buildings and/or structures where asbestos may have been present included Building 16/23, Building 17/19, Building 21/22, Building 24, Building 10/18 (Steam Plant/Electrical), Building 14 (office), and the cooling tower. Asbestos was also contained in insulation of tanks within buildings and in outside insulation of storage tanks in the main tank farm.

Areas of residual zinc contamination, resulting from the zinc process utilized by Ciba-Geigy to produce plastic additives, include equipment, process systems, and structures in Building 24, Building 21, and Building 19. Production utilizing the zinc process was carried out in Building 19 and Building 21 and involved the only continuous chemical manufacturing process run at the plant. Zinc was handled in such a large volume that it was recovered in a zinc recovery system in Building 24 and sent to another facility for recycling. The use of zinc in process systems also resulted in residual contamination of the wastewater treatment plant system and discharge to the Pawtuxet River. Clean up of all areas of zinc contamination was scheduled by Ciba-Geigy before demolition or dismantling of buildings, equipment and process systems began.

PCB contamination of floor surfaces in Building 21, Building 16/23, and Building 22 has been documented (OHM, 1986). Results of core sample analyses from the floors of these buildings revealed significant levels of PCBs (Table 10). The source of PCBs in these core samples has not been determined, but spills containing PCBs may have occurred within the buildings.

Table 11 is a list of electrical equipment containing PCBs at Ciba-Geigy's Cranston plant. PCB releases from this equipment could not

TABLE 10
PCB CORE SAMPLE RESULTS FROM THE
FLOORS OF BUILDINGS AT THE CIBA-GEIGY
FACILITY, CRANSTON, RHODE ISLAND
(OHM, 1986)

Location	PCB Concentration
Building 21	8 ppm
Building 16	
1st Floor	38 ppm
2nd Floor	12 ppm
3rd Floor	7 ppm
4th Floor	10 ppm
Building 23	
1st Floor	7 ppm
2nd Floor	17 ppm
3rd Floor	9 ppm
4th Floor	7 ppm
5th Floor	2 ppm
Building 22	
1st Floor	18 ppm
2nd Floor	29 ppm
3rd Floor	22 ppm
4th Floor	25 ppm
5th Floor	4 ppm
6th Floor	5 ppm

TABLE 11
EQUIPMENT CONTAINING PCBs AT THE CIBA-GEIGY FACILITY,
CRANSTON, RHODE ISLAND

Equipment	Location	Kg Soln Containing PCB	Brand (Askarel) ppm PCB)
Transformer Substation 1	Behind Building 27	1,705	>600,000
Transformer Substation 3	Building 18	2,773	>600,000
Transformer Substation 4A	Between Buildings 20/26 and Building 25	1,209	>600,000
Transformer	Behind Building 37	1,107	>600,000
Transformer Main Sub 2	Adjacent to railroad track along river - Warwick side	4,182	390
Transformer Main Sub 1	Adjacent to railroad track along river - Warwick side	5,114	9
Capacitor (two)	Building 22	19 19	>600,000
Capacitor (one)	Building 22 Machine Room	19	>600,000
Capacitor (two)	Building 18 First Floor	19 19	>600,000
Capacitor (two)	Building 18 Second Floor	19 19	>600,000
Capacitor (one)	Building 19 Fourth Floor	19	>600,000

be determined, but clean up of the Ciba-Geigy facility does include the removal and disposal of all PCB-containing equipment. Since most of this equipment is part of the electrical system required during the clean up phase and closing of the plant, the PCB removal will be accomplished last.

Major process buildings and facilities that have been demolished and no longer exist onsite include: Building 10, steam plant; Building 11, manufacturing; Building 14, office; Building 16/23, pilot plant; Building 17/19, manufacturing; Building 21/22, manufacturing; Building 24, zinc recovery system; Building 27, cooling tower; and the waste water treatment plant. No removal activities were being performed on the Warwick side of the facility during the VSI or SV. Ultimately, the only structures which will remain onsite following the demolition are the warehouse and laboratory buildings.

5.6 Atlantic Tubing and Rubber Company Property

Ciba-Geigy purchased 23 acres of adjoining property in Cranston from the Atlantic Tubing and Rubber Company, but has not developed this land and has no knowledge of SWMUs at that site. Ciba-Geigy has no records of the activities conducted by Atlantic Tubing and Rubber which indicate if hazardous wastes were handled at the facility. All buildings on the property have been razed. In 1982, during an excavation necessary to install a water line, some signs of discarded rubber were found by Ciba-Geigy on this property. No past or current releases from this property have been identified.

6.0 ENVIRONMENTAL INFORMATION SUMMARY

As a result of conducting an RFA at Ciba-Geigy, releases to the air, surface water, and ground water have been principally identified and may still be ongoing. Releases to the air and surface water from the facility have been documented throughout the plant's history. Analytical data to support the evidence of ground-water release(s) have been generated during the RFA. The potential for further releases from the plant, now that manufacturing operations have ceased, appears to be dependant upon two factors: (1) the presence of residual contaminants in the environment, and (2) the introduction or release of wastes during clean up and dismantling of the plant. Air, surface water, and ground-water release information will be summarized in this section.

6.1 Air

Air emissions from the Ciba-Geigy plant have occurred from different sources. Process buildings were equipped with special purpose and general purpose scrubbers for air emissions control, but at least 12 stacks were used to discharge to the atmosphere during manufacturing operations. Major components of these discharges were VOCs such as toluene and xylene. Annual discharges from Ciba-Geigy of VOCs during the early 1980s was between 50 and 100 tons. Additionally, from March 3, 1980, for an undetermined length of time (at least one year), Ciba-Geigy initiated routine burning of by-product solvent material as an alternate fuel in their boiler. This burning included the materials listed in Table 12 (Ciba-Geigy, 1981b) which may have resulted in the further emission of volatile organic compounds.

Two uncontrolled releases were noted during the PR. On June 18, 1980, Ciba-Geigy issued a letter to surrounding neighbors regarding the venting of tinuvin 328 (used as a plastics additive in food packaging) the previous day (Ciba-Geigy, 1980a). Although the material was considered nontoxic by Ciba-Geigy, the company recommended that garden

TABLE 12
 BY-PRODUCT SOLVENT MATERIALS BURNED
 BY CIBA-GEIGY, CRANSTON, RHODE ISLAND,
 AS AN ALTERNATE FUEL IN THEIR BOILER
 (Ciba-Geigy, 1981b)

Stream	Approximate Concentration
Recovered acetone	96% acetone, 4% water (100% volatile)
Acetone/toluene	40% acetone, 60% toluene (100% volatile)
Toluene/heptane	40% heptane, 60% toluene (100% volatile)

vegetables spotted with the material be discarded, and that coated swimming pools and cars be specially cleaned since tinuvin is not water soluble and cannot be washed off. On June 24, 1982, Ciba-Geigy accidentally released, over a period of 15 minutes, a mist of steam and Dowtherm-A oil (74 percent diphenyl ether and 26 percent biphenyl) from their boiler expansion tank vent line (Ciba-Geigy, 1982a). The emission resulted in a loss of approximately 25 gallons of liquid that migrated southeasterly from Building 10 toward the Warwick side of the plant.

The most widely documented evidence of air migration from the plant was from the odors associated with the chemical manufacturing processes. The principle sources of these odors included (1) the wastewater treatment plant, (2) the cooling tower, and (3) the zinc sludge from production in Building 21 and recovery in Building 24. Due to the large number of complaints received by surrounding residents, and violations of Rhode Island Air Pollution Control Regulation 17 documented by the RIDEM over the years, enforcement actions against Ciba-Geigy were initiated by the RIDEM Division of Air and Hazardous Materials. The case, however, was dismissed because closure of the plant was an overriding issue and RIDEM information was considered inadmissible (James, 1987).

On January 19, 1982, the RIDEM Division of Air and Hazardous Materials, in association with EPA Surveillance and Analysis Division, sampled air emissions around Ciba-Geigy in an attempt to identify and quantify the organic chemicals present. Results of this screening study show, as indicated in Table 13, that low levels of isopropyl alcohol, toluene, benzene, and trichlorethylene were detected well below multimedia environmental goals (MEG) set by EPA (RIDEM, 1982a).

Sampling by RIDEM for organic chemicals in the air in the area of Ciba-Geigy began again on September 30, 1982. Samples were collected for 4 to 6 hours twice a week on work days. In the samples that were analyzed, no organic chemicals were detected (RIDEM, 1982b).

TABLE 13
 QUANTITIES OF CHEMICALS MEASURED IN AIR SAMPLES
 NEAR CIBA-GEIGY CORPORATION
 (Concentrations in ppb)
 (RIDEM, 1982a)

Location	Isopropanol	Toluene	Benzene	TCE
Park View Boulevard, Cranston	<1	0.6	0.7	0.35
Milton Road-Rathburn Avenue, Warwick	40.4	18.2	1.2	0.6
Holmes Road-Rathburn Avenue, Warwick	13.8	4.4	1.6	0.35
Larch Avenue-Vine Avenue, Warwick	<1	2.3	1.3	0.31
MEG (Allowable)	950	240	24	238

The RIDEM also conducted surface soil sampling in the area of Ciba-Geigy to determine if volatile compounds emitted from the facility were responsible for organic contamination of soils offsite. Analyses were performed by Rhode Island Department of Health, Division of Laboratories. Sampling locations for the first round of samples, collected July 23, 1986, are shown in Figure 7 (RIDEM, 1986). The sampling locations included three homes near Ciba-Geigy downwind of the prevailing wind from the plant, two locations further downwind, one location south of the plant in Warwick, and a background location in Roger Williams Park. Results (Table 14) presented in October 1986 showed (1) low concentrations of some volatile organics, including toluene and xylene, which were abundantly used by Ciba-Geigy, at the three locations closest to the plant, (2) apparently normal concentrations of polynuclear aromatic hydrocarbons (PAHs), which are often found in soils in urban areas and are produced by sources of combustion, including boilers, automobiles, and wood stoves, and are also formed during the degradation of some organic matter in soil, and (3) high levels of tinuvin, manufactured by Ciba-Geigy, at the sampling locations closest to and furthest from the plant. Zinc was also present in relatively low concentrations in all samples collected. In general, the sampling results suggested that additional sampling must be conducted before any substantive conclusions could be drawn.

In December 1986, results from a second round of soil sample collection, performed on November 12, 1986, were presented by RIDEM (Table 15). One sample was collected in a rural area of North Kingstown (sample A), and three others in urban residential areas outside of Cranston (samples B, C, and D) (RIDEM, 1986a). These locations were chosen to determine if the substances analyzed for, as suggested by their presence in the first round of sampling, were possibly ubiquitous. The sample 2 location from the July 23, 1986, sampling was resampled (sample 2A) and analyses were also performed on two tomatoes

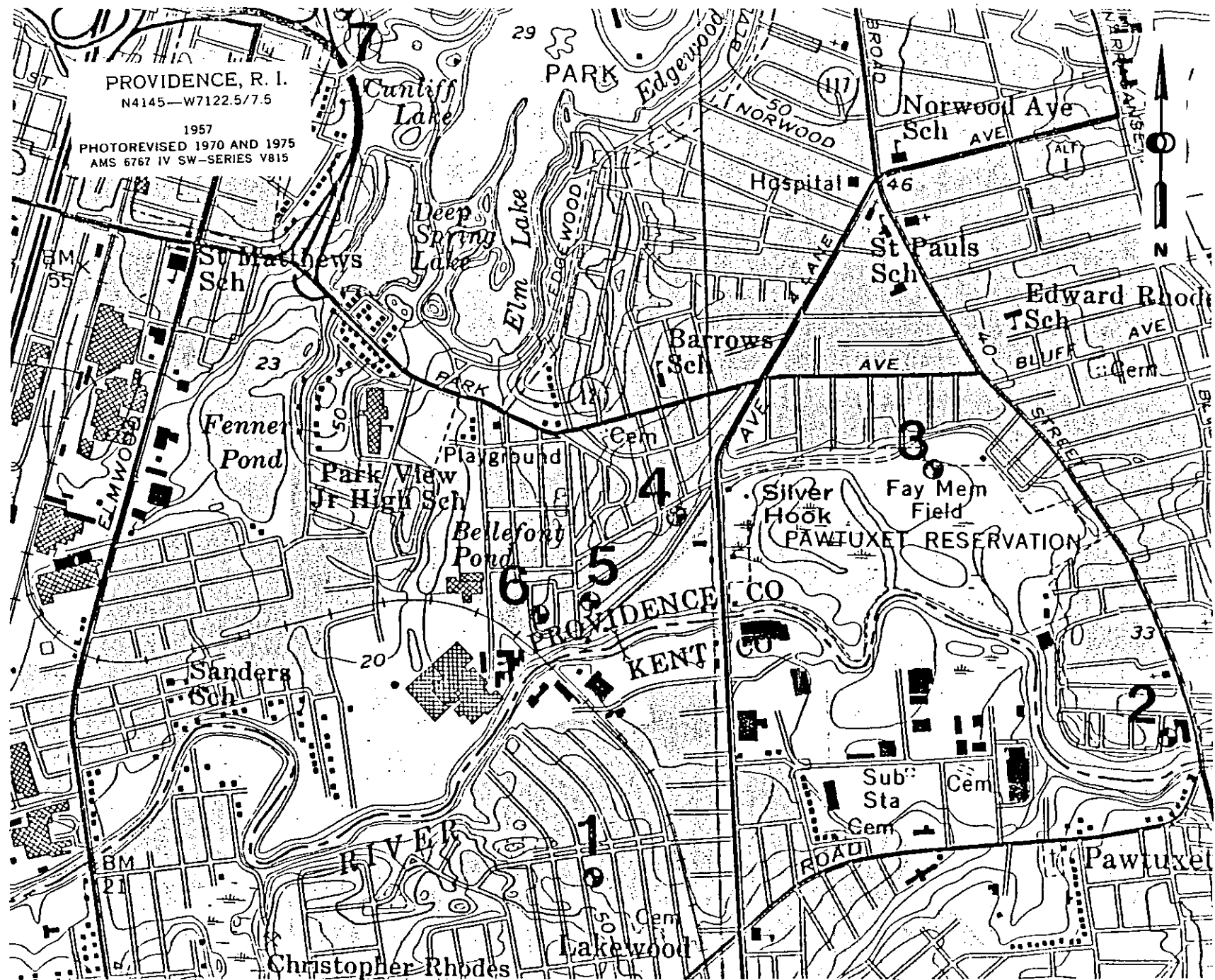


FIGURE 7
SOIL SAMPLING LOCATIONS AROUND THE CIBA-GEIGY PLANT,
CRANSTON AND WARWICK, RHODE ISLAND, JULY 23, 1986
(RIDEM, 1986)

TABLE 14
RESULTS OF THE JULY 23, 1986, SOIL SAMPLING AROUND THE
CIBA-GEIGY PLANT, CRANSTON AND WARWICK, RHODE ISLAND
(RIDEM, 1986)

		MDL	1	2	Sample Number		5	6	7
					3	4			
Metal (ppm)									
Zinc		-	25.1	105.2	19.9	33.3	32.6	40.2	65.5
Volatile Organics (ppm)									
Chloroform	↔	0.5	8	0.5	2	6	6	40	6
Bromodichloromethane		0.5	ND	ND	ND	ND	ND	1	ND
Dibromochloromethane		0.5	ND	ND	ND	ND	ND	ND	ND
Bromoform		0.5	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane		0.5	ND	ND	ND	ND	ND	0.8	ND
Carbon tetrachloride		0.5	ND	ND	ND	ND	ND	0.5	ND
Trichloroethylene		0.5	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane		0.5	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene		0.5	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-tetrachloroethane		0.5	ND	ND	ND	ND	ND	ND	ND
Dichloromethane	↗	0.5	20	2	1	10	8	70	10
1,1-dichloroethene		0.5	ND	ND	ND	ND	ND	ND	ND
1,2-dichloroethene		0.5	ND	ND	ND	ND	ND	0.8	ND
1,1-dichloroethane		0.5	ND	ND	ND	ND	ND	ND	ND
1,2-dichloroethane		0.5	ND	ND	ND	ND	ND	ND	ND
1,2-dichloropropane		0.5	ND	ND	ND	ND	ND	ND	ND
1,3-dichloropropene (cis & trans)		0.5	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene		0.5	ND	ND	ND	ND	ND	ND	ND
Benzene		0.5	ND	ND	ND	ND	ND	0.7	ND
Toluene	→	0.5	0.6	ND	ND	0.6	0.7	2	0.9
Ethylbenzene		0.5	ND	ND	ND	ND	ND	0.5	ND
Xylene	→	1.0	ND	ND	ND	0.9	1	3	2
2-chloroethylvinylether		0.5	ND	ND	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbon Extractables (ppb)									
Naphthalene		10	ND	ND	18	91	ND	ND	34
Acenaphthylene		15	ND	92	57	680	43	23	250
Acenaphthene		15	ND	180	51	ND	ND	ND	ND
Fluorene		15	ND	330	110	690	ND	ND	33
Phenanthrene	→	10	66	4500	2000	5800	240	250	350
Anthracene		10	ND	550	130	4900	ND	ND	56
Fluoranthene	→	15	190	6700	2300	14000	490	460	690
Pyrene	→	15	140	4700	1400	12000	370	360	550

↑
(CONTINUED)

TABLE 14
RESULTS OF THE JULY 23, 1986, SOIL SAMPLING AROUND THE
CIBA-GEIGY PLANT, CRANSTON AND WARWICK, RHODE ISLAND
(RIDEM, 1986)
(CONTINUED)

	MDL	1	2	Sample Number		5	6	7
				3	4			
Polynuclear Aromatic Hydrocarbon Extractables (ppb) (continued)								
Benzo(a)anthracene	15	74	1800	520	3100	220	180	400
Chysene	15	53	2300	3700	6300	140	120	330
Benzo(b)fluoranthene	→20	ND	1800	560	4200	180	ND	680
Benzo(k)fluoranthene	20	ND	3200	470	2700	180	250	350
Benzo(a)pyrene	→25	ND	3600	550	4000	230	ND	680
Ideno(1,2,3)pyrene	50	ND	ND	600	1500	ND	ND	ND
Dibenzo(a,h)anthracene	50	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	50	ND	ND	440	1300	ND	ND	ND
Dacthal*	150	910	ND	ND	ND	ND	ND	ND
Others (ppb)								
p-cresol	150	ND	ND	ND	ND	ND	ND	ND
Phenyl ether	50	ND	ND	ND	ND	ND	ND	ND
Biphenyl	25	ND	ND	48	950	ND	34	ND
Tinuvin 327	50	ND	11000	ND	ND	ND	2100	110
Tinuvin 328	150	110	1500	ND	ND	ND	420	36
Prometon	150	ND	ND	ND	ND	ND	ND	ND

* Not a polynuclear aromatic hydrocarbon

ND - Not detected at concentrations above the Minimum Detection Limit (MDL).

MDL - Minimum Detection Limit; the level below which the chemical can not be detected with presently available instrumentation.

Samples collected July 23, 1986

Analyses performed by the Rhode Island Department of Health, Division of Laboratories.

TABLE 15
RESULTS OF THE NOVEMBER 12, 1986 SOIL SAMPLING CONDUCTED BY THE RIDEM
(RIDEM, 1986)

	MDL	2A	A	Sample Number		D	RT	OT
				B	C			
Volatile Organics (ppm)								
Chloroform	0.5	ND	NA	ND	ND	ND	NA	NA
Bromodichloromethane	0.5	ND	NA	ND	ND	ND	NA	NA
Dibromochloromethane	0.5	ND	NA	ND	ND	ND	NA	NA
Bromoform	0.5	ND	NA	ND	ND	ND	NA	NA
1,1,1-trichloroethane	0.5	ND	NA	ND	ND	ND	NA	NA
Carbon tetrachloride	0.5	ND	NA	ND	ND	ND	NA	NA
Trichloroethylene	0.5	ND	NA	ND	ND	ND	NA	NA
1,1,2-trichloroethane	0.5	ND	NA	ND	ND	ND	NA	NA
Tetrachloroethylene	0.5	ND	NA	ND	ND	ND	NA	NA
1,1,2,2-tetrachloroethane	0.5	ND	NA	ND	ND	ND	NA	NA
Dichloromethane	0.5	ND	NA	ND	ND	ND	NA	NA
1,1-dichloroethene	0.5	ND	NA	ND	ND	ND	NA	NA
1,2-dichloroethene	0.5	ND	NA	ND	ND	ND	NA	NA
1,1-dichloroethane	0.5	ND	NA	ND	ND	ND	NA	NA
1,2-dichloroethane	0.5	ND	NA	ND	ND	ND	NA	NA
1,2-dichloropropane	0.5	ND	NA	ND	ND	ND	NA	NA
1,3-dichloropropene (cis & trans)	0.5	ND	NA	ND	ND	ND	NA	NA
Chlorobenzene	0.5	ND	NA	ND	ND	ND	NA	NA
Benzene	0.5	ND	NA	ND	ND	ND	NA	NA
Toluene	0.5	ND	NA	ND	ND	ND	NA	NA
Ethylbenzene	0.5	ND	NA	ND	ND	ND	NA	NA
Xylene	1.0	ND	NA	ND	ND	ND	NA	NA
2-chloroethylvinylether	0.5	ND	NA	ND	ND	ND	NA	NA
Polynuclear Aromatic Hydrocarbon Extractables (ppb)								
Naphthalene	75	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	100	ND	ND	180	ND	ND	ND	ND
Acenaphthene	150	ND	ND	ND	ND	ND	ND	ND
Fluorene	150	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	100	3400	ND	2300	520	ND	ND	ND
Anthracene	75	400	ND	300	ND	ND	ND	ND
Fluoranthene	100	5800	13	4100	820	ND	ND	ND
Pyrene	150	5800	10	3500	820	ND	ND	ND

(CONTINUED)

TABLE 15
RESULTS OF THE NOVEMBER 12, 1986 SOIL SAMPLING CONDUCTED BY THE RIDEM
(RIDEM, 1986)
(CONTINUED)

	MDL	2A	Sample Number				RT	OT
			A	B	C	D		
Polynuclear Aromatic Hydrocarbon Extactables (ppb) (continued)								
Benzo(a)anthracene	250	6800	ND	2400	720	ND	ND	ND
Chysene	200	4700	ND	2000	480	ND	ND	ND
Benzo(b)fluoranthene	250	ND	ND	3200	ND	ND	ND	ND
Benzo(k)fluoranthene	200	1500	ND	1300	ND	ND	ND	ND
Benzo(a)pyrene	300	14000	ND	5300	1300	ND	ND	ND
Ideno(1,2,3)pyrene	500	6600	ND	2400	ND	ND	ND	ND
Dibenzo(a,h)anthracene	500	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	500	5700	ND	2500	ND	ND	ND	ND
Dacthal*	200	ND	6800	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate*	500	1000	ND	7300	880	39000	1900	ND
Hexanedioic Acid Dioctyl Ester*	-	ND	ND	**	ND	**	ND	ND
Others (ppb)								
p-cresol	200	ND	ND	ND	ND	ND	ND	ND
Phenyl ether	150	ND	ND	ND	ND	ND	ND	ND
Biphenyl	100	ND	39	ND	ND	ND	ND	ND
Tinuvin 327	500	ND	ND	ND	ND	ND	ND	ND
Tinuvin 328	400	ND	ND	ND	ND	ND	ND	ND
Prometon	400	ND	ND	ND	ND	ND	ND	ND
Metal (ppm)								
Zinc	-	34.1	NA	151.0	230.0	88.7	NA	NA

* Not a polynuclear aromatic hydrocarbon.

** This compound appears to be present but its presence cannot be confirmed or qualified.

NA - Not analyzed.

ND - Not detected at concentrations above the Minimum Detection Limit (MDL).

MDL- Minimum Detection Limit; the level below which the chemical cannot be detected with presently available instrumentation.

Samples 2A, B, C, D collected November 12, 1986. Sample A collected September 1986. Analysis performed by the Rhode Island Department of Health, Division of Laboratories.

Sample No.	Location
2A	Broad Street and Woodbury Road, Cranston
A	Rural Location - North Kingstown
B	East Side - Providence
C	Mount Pleasant - Providence
D	Buttonwoods - Warwick
RT	Red Tomato
OT	Orange Tomato

(samples RT and OT) grown near sample location 4 from the previous sampling event. The results did not reveal the presence of any volatile organics or tinuvin in any of the samples. This may indicate that the area immediately surrounding Ciba-Geigy is more contaminated with these substances than in other urban areas. Results from both rounds of sampling, however, were not used to conclusively determine that Ciba-Geigy was the source of the substances present near the plant.

The presence of PAHs in samples from urban areas (samples B, C and D) and the relatively low concentration found in the rural sample (sample A) tend to confirm that the PAHs are probably associated with the urban area with high concentrations resulting from fuel combustion (RIDEM, 1986a).

On April 15, 1987 RIDEM completed its sampling program developed to determine if contamination as a result of air emissions was present in soils around Ciba-Geigy. Ten samples were taken in the area of Ciba-Geigy including areas to the north and south of the facility. Sampling locations for the third round of sample collection are shown in Figure 8 (RIDEM, 1987). Results (Table 16) presented to EPA Region I showed no volatile organic compounds present (except for tetra-chloroethane at 0.7 ppm), indicating that VOC contamination was not widespread as potentially suggested by the July 23, 1986 sampling round. Various PAHs and phthalates were detected in the third round samples which further support the conclusion that these compounds can no be attributed to a particular source since levels of PAHs and phthalates were found in virtually all samples collected during each sampling round.

The April 1987 sampling revealed the low level presence of tinuvin 328 at sample location 14 (840 ppb) and tinuvin P at sample location 13 (10 ppb) and sample location 10 (20 ppb) only. The July 1986 sampling revealed the presence of tinuvin 328 and 327 at four of the seven locations sampled. The November 1986 sampling of locations away from Ciba-Geigy did not reveal the presence of tinuvin, suggesting Ciba-Geigy

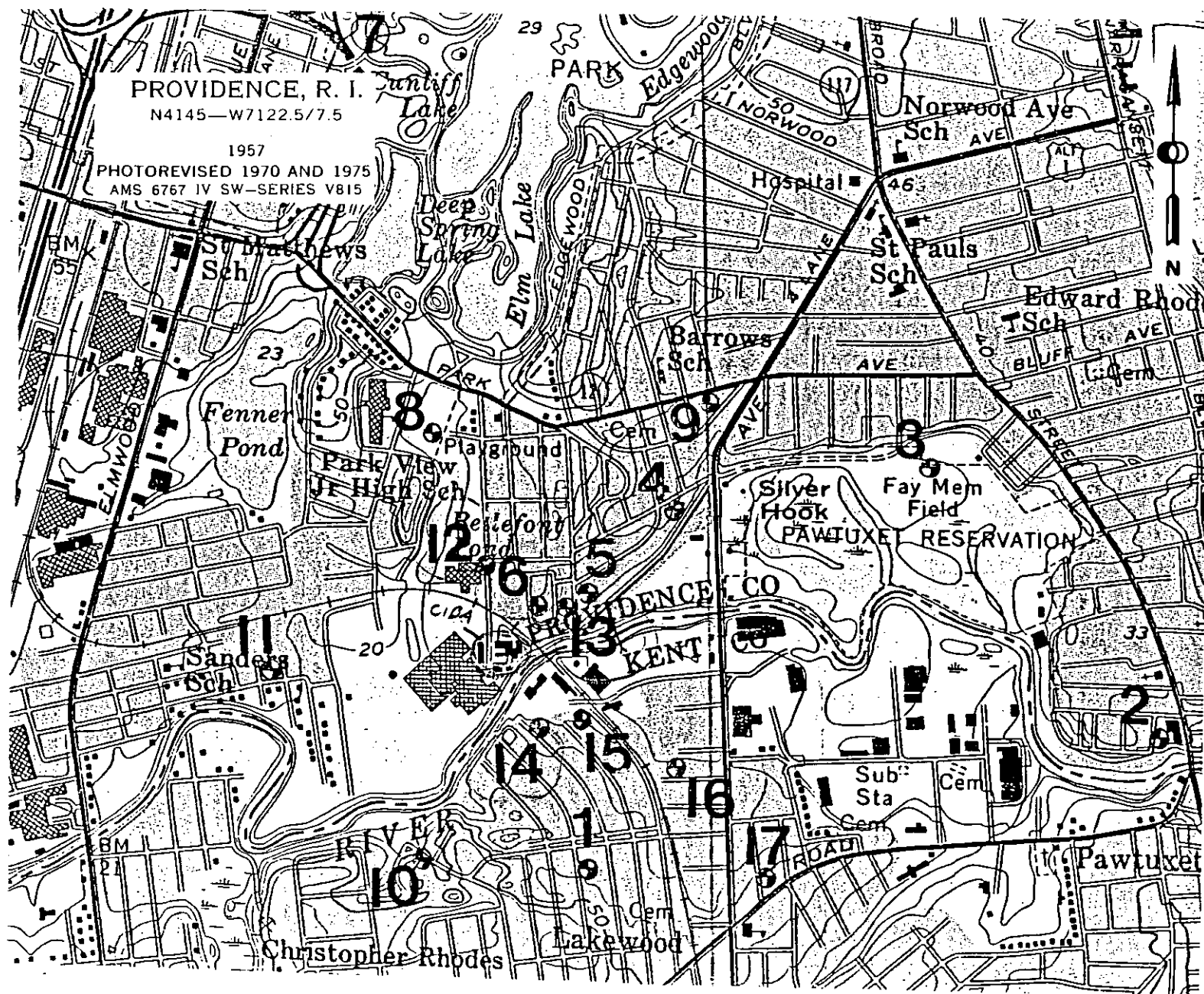


FIGURE 8
Soil Sampling Locations Around the Ciba-Geigy Plant,
Cranston and Warwick, Rhode Island
April 15, 1987

TABLE 16
RESULTS OF THE APRIL 15, 1987 SOIL SAMPLING CONDUCTED BY RIDEM AROUND THE
CIBA-GEIGY PLANT, CRANSTON, AND WARICK, RHODE ISLAND.
(RIDEM, 1987)

		Sample Number									
	MDL	8	9	10	11	12	13	14	15	16	17
Volatile Organics (ppm)											
Chloroform	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-tetrachloroethane	0.5	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichloromethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-dichloroethene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-dichloropropane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dichloropropene (cis & trans)	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbon Extractables (ppb)											
Naphthalene	100	ND	ND	ND	ND	190	ND	ND	ND	ND	ND
Acenaphthylene	100	ND	200	ND	ND	380	260	ND	ND	ND	ND
Acenaphthene	100	ND	ND	ND	ND	300	ND	ND	ND	ND	ND
Fluorene	100	ND	140	ND	100	620	ND	ND	ND	ND	ND
Phenanthrene	→100	ND	1500	360	840	6600	780	360	100	ND	ND
Anthracene	100	ND	140	ND	ND	700	140	ND	ND	ND	ND
Fluoranthene	→100	120	340	3500	1200	8600	3100	540	280	140	ND
Pyrene	→100	140	2700	380	1100	8900	2000	360	240	140	ND
Benzo(a)anthracene	100	ND	1600	260	400	4200	1700	260	160	ND	ND
Chysene	100	ND	720	140	340	1100	1100	ND	ND	ND	ND
Benzo(b)fluoranthene	→100	ND	2700	ND	600	3000	1900	320	ND	ND	ND
Benzo(k)fluoranthene	100	ND	2100	ND	580	4000	2100	ND	ND	ND	ND

(CONTINUED)

TABLE 16
RESULTS OF THE APRIL 15, 1987 SOIL SAMPLING CONDUCTED BY RIDEM AROUND THE
CIBA-GEIGY PLANT, CRANSTON, AND WARICK, RHODE ISLAND.
(RIDEM, 1987)
(CONTINUED)

	MDL	8	9	10	<u>Sample Number</u>			14	15	16	17
					11	12	13				
<u>Polynuclear Aromatic Hydrocarbon Extractables (ppb) (continued)</u>											
Benzo(a)pyrene	100	ND	640	ND	620	11000	5300	ND	ND	ND	ND
Ideno(1,2,3)pyrene	100	ND	1700	ND	ND	5700	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	100	ND	340	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	100	ND	1200	ND	ND	ND	ND	ND	ND	ND	ND
<u>Others (ppb)</u>											
p-cresol	75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenyl ether	75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Biphenyl	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
✓ Tinuvin 327	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
✓ Tinuvin 328	500	ND	ND	ND	ND	ND	ND	840	ND	ND	ND
Prometon	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Oacthal	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-tertarylphenol	25	ND	ND	40	ND	ND	ND	ND	ND	ND	ND
2,4-di-tertbutylphenol	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-phenyl-L-naphthylamine	75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
✓ Tinuvin P	10	ND	ND	20	ND	ND	10	ND	ND	ND	ND
diethyl phthalate	200	ND	ND	1300	2300	5200	2400	5200	1500	1300	1100
Dibutyl phthalate	200	ND	400	ND	240	740	1300	900	1300	820	380
Butylbenzyl phthalate	500	190	ND	ND	ND	8400	2600	ND	ND	ND	ND
bis(2-ethylhexyl)phthalate	500	19000	11000	57000	1800	4500	45000	5800	200000	2900	840
DDT	500	ND	ND	ND	ND	ND	1800	ND	ND	ND	ND
DDE	500	ND	ND	2200	ND	ND	ND	ND	ND	ND	ND

ND -Not detected at concentrations above the Minimum Detection Limit (MDL)

MDL-Minimum Detection Limit; the level below which the chemical cannot be detected with presently available instrumentation.

ppm-Parts per million.

ppb-Parts per billion

Samples collected April 15, 1987.

Analyses performed by the Rhode Island Department of Health, Division of Laboratories.

as a source for the tinuvin found earlier. The latest results, however, did not confirm the incidence of tinuvin in the soil near Ciba-Geigy, indicating that tinuvin contamination was not widespread. Additionally, other compounds thought to be associated with chemical manufacturing operations at Ciba-Geigy were tested for and not found (except for 4-tertamyl phenol at 40 ppb).

Based on the results from the three rounds of sampling, RIDEM concluded that there is no widespread contamination of soil offsite by previous air emissions from Ciba-Geigy and any contamination present in the area surrounding Ciba-Geigy does not present a significant health risk. Versar concurs with these findings. ✓

The potential for further release and migration via the air pathway has been reduced by the cessation of chemical manufacturing operations at Ciba-Geigy. Residents in the surrounding neighborhoods remain the most likely populations to be affected by residual contamination in the environment around Ciba-Geigy or by a release during the plant clean up and demolition. The levels of chemicals found near Ciba-Geigy, however, do not indicate a significant health risk to neighbors of Ciba-Geigy via inhalation of dust, ingestion of soil, or skin contact (RIDEM, 1986). The uptake of contaminants by garden vegetables was not considered by RIDEM due to inadequate information. The potential for ground-water contamination from offsite soil leachate was also not evaluated, since area residents are served by public water supplies. An EPA evaluation of these potential concerns was not within the scope of the RFA. Further studies by Ciba-Geigy or EPA may determine health risks associated with offsite contamination. ✓

6.2 Surface Water Migration Pathway

Surface water migration via the Pawtuxet River is the most visible contaminant pathway from the Ciba-Geigy facility. Evidence of releases from the plant to the river have been documented and discussed in previous sections of this report. Contaminant migration via the Pawtuxet

River potentially affects a much larger population than air emissions. Pollution of the Narragansett Bay and its upper reaches in the Tidewater subarea, including the Providence River and the Pawtuxet River, is of major environmental concern to many people. Potential exposure results principally from direct contact with the water, sediments and/or accumulation in the food chain.

Pollution of the surface waters in the area cannot be attributed to one source. The highly urban and industrialized nature of the Providence area gives rise to a number of municipal and industrial discharges which collectively contribute to the overall pollution problem. One study conducted by the U.S. EPA, Environmental Research Laboratory in Narragansett, Rhode Island (Lake et al., 1981), however, links certain compounds found in samples of edible marine organisms and suspended particulate material obtained from Narragansett Bay with chemical plant discharges in the upper bay. Evidence of past releases from Ciba-Geigy may be found in the underlying sediments of the Pawtuxet River where certain compounds manufactured at the plant may have accumulated.

Analytical data found during the PR linking discharges from Ciba-Geigy to contaminant migration in the Pawtuxet River and associated surface waters, however, was inconclusive. On September 20 and 21, 1981, personnel from EPA's Surveillance and Analysis Division sampled Ciba-Geigy's influent and effluent, and the Pawtuxet River. The three river sampling locations (Figure 9) were located upstream of the Ciba-Geigy treatment plant effluent, downstream midway between the effluent and the Pawtuxet Cove dam, and just upstream of the dam (EPA, 1981a). Table 17 presents the results of the sampling effort. The data was evaluated by EPA and was used only as a guide to what was present in the effluent and river.

During the SV, four river sediment samples (SD1, SD2, SD3, and SD4) were collected and analyzed for volatile organic, semivolatile organic, pesticide/PCB, and total metal parameters. The samples collected

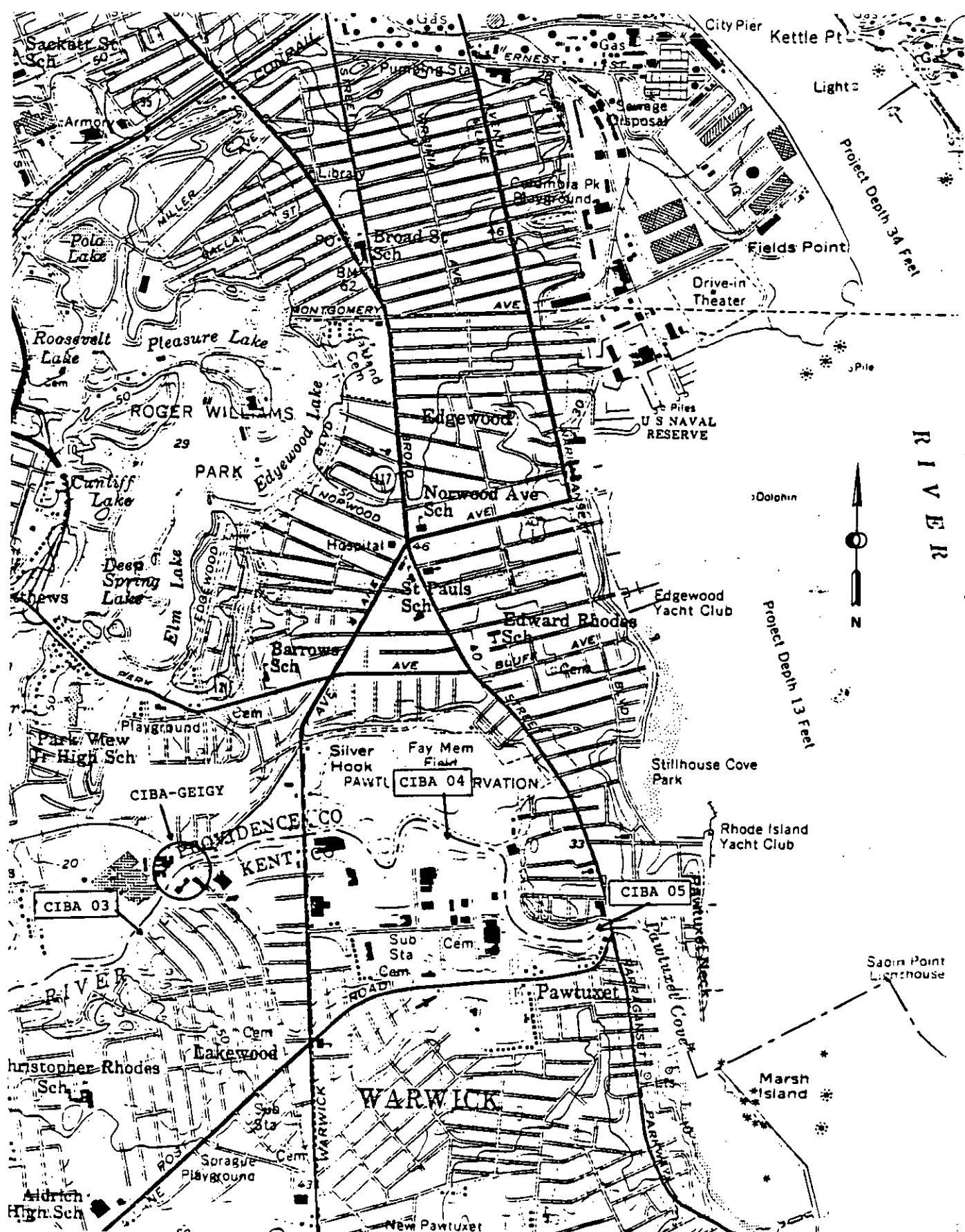


FIGURE 9
PAWTUXET RIVER SAMPLING, SEPTEMBER 20-21, 1986
(EPA, 1981a)

TABLE 17
PARTIAL ANALYTICAL RESULTS OF EFFLUENT AND RIVER SAMPLING
BY EPA, SEPTEMBER 21-22, 1981
(EPA, 1981a)

	Concentration (ppb)			
	Effluent	Ciba 03	Ciba 04	Ciba 05
<u>Organic Compounds</u>				
Benzene	66	<1	<1	<1
Chlorobenzene	1,604	ND	48	42
1,1,1-trichloroethane	178	1	2	4
Chloroform	446	1	8	8
Ethylbenzene	2,150	<1	55	51
Methylene chloride	768	1	4	2
Toluene	15,898	1	.154	108
2,4-dichlorophenol	1,130/.1320 ^a	ND	19	11
Phenol	.145/.224 ^a	9	11	8
Nitrobenzene	594/185	ND	ND	ND
Bis(2-ethylhexyl)phthalate	6/10	11	424	361
Diethyl phthalate	301/70	38	16	77
Anthracene	2/ND ^a	ND	ND	ND
<u>Metals</u>				
Arsenic	<3	<3	<3	<3
Cadmium	<4	<4	<4	<4
Chromium	29	8	<8	<8
Copper	19	48	57	66
Lead	43	22	24	51
Mercury	<1	<1	1.6	<1
Nickel	96	49	62	67
Selenium	<4	<4	<4	<4
Zinc	400	83	134	118
<u>Miscellaneous Compounds</u>				
Tinuvin #1	ND	ND	ND	ND
Tinuvin #2	9,720	ND	88	57
2,4,8-trichlorobenzofuran	233	ND	1	ND
5-chloro-2(2,4,- dichlorophenoxy)phenol	656	ND	7	4

ND = Not detected.

^a = Duplicate analysis.

furthest downstream (SD1) and furthest upstream (SD4) were also analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and 2,3,7,8-tetrachlorodibenzo-p-furan (TCDF). Figure A in Attachment A shown the sampling location.

River sediment sampling results are presented in Table 18. The results indicate that metals and base/neutral extractable organic compounds are predominately present in the river sediments. No pesticides or PCBs were detected in any of the samples; these results were not included in Table 18. Additionally no dioxin or furan was detected in the two samples analyzed for these parameters.

The highest concentrations of chromium (1,800 ppm), lead (369 ppm), mercury (23 ppm), and zinc (2,280 ppm) were all found in the furthest upstream sediment sample. Tetrachloroethylene (1,700 ppb), fluoranthene (6,500 ppb), pyrene (6,500 ppb), benzo(k)fluoranthene (3,100 ppb), and phenanthrene (4,300 ppb) were also found at the highest concentrations in the upstream sample. Conversely, the highest levels of cadmium (16 ppm), manganese (560 ppm), acetone (28 ppb), toluene (30 ppb), bis(2-ethylhexyl) phthalate (19,000 ppb), and di-n-octyl phthalate (6,400 ppb) were all found in downstream sediment samples which would suggest that Ciba-Geigy is a particular source attributable for the presence of these compounds.

Analytical results received from Ciba-Geigy regarding split sediment samples, however, showed a similar disparity. The highest concentrations of toluene (230 ppb), acetone (4,700 ppb), 2-butanone (740 ppb), acenaphthylene (2,200 ppb), fluoranthene (17,000 ppb), chrysene (5,100 ppb), chromium (827 ppm), lead (47 ppm), and zinc (1,700 ppm) were all found in the furthest upstream sample. Meanwhile the highest levels of chlorobenzene (130 ppb), bis(2-ethylhexyl)phthalate (8,700 ppb), fluorene (210 ppb), dieldrin (890 ppb) cadmium (3.9 ppm), and mercury (0.62 ppm) were all found in downstream sediment samples. Most of the compounds detected in both Ciba-Geigy and EPA downstream sediment samples may be associated with constituents in the facility's previous wastewater discharges.

TABLE 18
PAWTUXET RIVER SEDIMENT SAMPLING RESULTS^a
CIBA-GEIGY SAMPLING VISIT
June 11-12, 1987

	SD1	Sample Numbers		SD4
		SD2	SD3	
Metals (ppm)				
Antimony	44	32	26	ND(45)
Arsenic	[6.5]	6.6	[2.8]	9.3
Barium	182	133	[18]	222
Beryllium	[1.5]	[1.2]	ND(0.58)	[1.7]
Cadmium	16	3.0	ND(1.3)	5.9
Chromium	79	310	14	1,080
Iron	18,600	19,200	9,380	21,100
Lead	237	188	17	369
Magnesium	[1,880]	2,820	[1,100]	[3,610]
Manganese	560	302	100	266
Mercury	10	6.3	ND(11)	23
Nickel	33	ND(15)	ND(7.8)	ND(22)
Silver	ND(5.1)	ND(4.0)	ND(2.1)	ND(5.9)
Vanadium	[29]	33	[7.8]	43
Zinc	389	528	52	2,280
Volatile Organics (ppb)				
Methylene Chloride	67B	560BJ	4BJ	1,200B
Acetone	28	830BJ	5J	2,000BJ
Toluene	30	ND(910)	1J	ND(1,200)
Tetrachloroethylene	ND(13)	ND(910)	ND(6)	1,700
2-Butanone	ND(26)	2,400B	ND(13)	4,000B
Semivolatile Organics (ppb)				
2,4-Dimethylphenol	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
1,2-Dichlorobenzene	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
1,4-Dichlorobenzene	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
2-Chlorophenol	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
Phenol	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
Fluoranthene	1,400	ND(15,000)	ND(4,100)	6,500
Pyrene	1,100	ND(15,000)	ND(4,100)	6,500
Butylbenzylphthalate	130J	ND(15,000)	ND(4,100)	ND(3,800)
Bis(2-ethylhexyl) phthalate	10,000	ND(15,000)	19,000	2,000J
Chrysene	790J	ND(15,000)	ND(4,100)	3,700J
Di-n-octyl phthalate	490J	ND(15,000)	6,400	ND(3,800)
Benzo(b)fluoranthene	1,000	ND(15,000)	ND(4,100)	3,400J
Benzo(k)fluoranthene	ND(870)	ND(15,000)	ND(4,100)	3,100
Benzo(a)pyrene	520J	ND(15,000)	ND(4,100)	2,700J
Benzo(g,h,i)perylene	310J	ND(15,000)	ND(4,100)	1,800J
Phenanthrene	700J	ND(15,000)	ND(4,100)	4,300

(CONTINUED)

TABLE 18
PAWTUXET RIVER SEDIMENT SAMPLING RESULTS^a
CIBA-GEIGY SAMPLING VISIT
June 11-12, 1987
(Continued)

	SD1	Sample Numbers		SD4
		SD2	SD3	
Iideno(1,2,3-cd)pyrene	ND(870)	ND(15,000)	ND(4,100)	1,500J
Dimethyl phthalate	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
Anthracene	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
Benzo(a)anthracene	520J	ND(15,000)	ND(4,100)	ND(3,800)
4-Chloroaniline	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
Dibenzofuran	ND(870)	ND(15,000)	ND(4,100)	ND(3,800)
<u>Dioxin and furan (ppt)</u>				
2,3,7,8-Tetrachloro-diphenyl-p-dioxin	ND(23)	NA	NA	ND(83)
2,3,7,8-Tetrachloro-diphenyl-p-furan	ND(34)	NA	NA	ND(78)

ND() - Compound not detected at level indicated.

J - Presence of compound detected, value estimated.

B - Compound was detected in the QC blank.

[] - Result is a value greater than the instrument detection limit, but less than the contract required detection limit.

^aResults are a compilation of the reported analytical data. HSL analytical parameters which do not appear in this table were not detected by the respective contract laboratories. Metals analyses were performed by Cambridge Analytical Associates, Boston, Massachusetts on 7/20/87. Dioxin and furan analyses were performed by Enseco-California Analytical Laboratory, West Sacramento, California on 6/29/87. Other organic analyses were performed by ETC-Toxicon, Baton Rouge, Louisiana as reported on 7/31/987.

Regardless of the source, the levels detected indicate that the river sediments in the vicinity of Ciba-Geigy contain elevated levels of some compounds which may pose a threat to human health or the environment. It should be noted that although relatively high values for methylene chloride, acetone, and 2-butanone were reported in some of the samples (Table 18), these concentrations cannot be considered valid since these parameters were also detected in the method blanks analyzed by the EPA contract laboratory. Results from the split sediment samples collected by Ciba-Geigy did reveal, however, the presence of acetone in all four samples and 2-butanone in the furthest upstream sample. The levels detected for both of these compounds were estimated values.

The potential for release to the Pawtuxet River from residual contamination at Ciba-Geigy needs to be determined since analytical data documenting past releases or discharges is inconclusive for this pathway. Ciba-Geigy principally discharged to the Pawtuxet River under an NPDES permit and concentrations of contaminants found in the plant's effluent were limited by the permit. The effects of regulated or unregulated discharges to human health or the environment has not been determined. Further, the ground water contribution to flow of the Pawtuxet River in the vicinity of Ciba-Geigy may also be responsible for the introduction of contaminants to the river.

6.3 Ground Water

Releases to the ground water at Ciba-Geigy have been identified in the former Building 11 area where toluene was detected in the vicinity of the building's sump at the time of demolition. Prior to the RFA no additional information has been available regarding the quality of ground water beneath the facility. During the VSI several recently installed ground-water level measurement pipes were noted throughout the facility on both Cranston and Warwick sides of the Pawtuxet River. Versar was informed by Ciba-Geigy that although these pipes were not installed for monitoring purposes they could be used to collect samples to give an indication of any contaminants present in the ground water.

Seven of the twelve pipe locations were sampled during the SV. These locations included the former silt pile area, the wastewater treatment plant, and the former production area. Figure A in Attachment A shows the sampling locations. Depth to water in these pipes ranged from approximately 4 feet to over 12 feet. Ground water samples were collected using a peristaltic pump and analyzed for volatile organics, semivolatile organics, pesticides/PCBs, and total metals. Sample results are shown in Table 19.

The results show the presence of selected inorganic and organic contaminants in the ground water. Overall, the most significant contamination appears to be limited to the former production area. Only two samples (GW6, wastewater treatment plant, and GW8, silt pile area) were taken outside of this area. Except for manganese (5.47 ppm) in GW6 and zinc (5.36 ppm) in GW8 these locations can essentially be considered control locations with respect to contaminant levels. The elevated levels of manganese and zinc as well as the low level presence of methylene chloride and acetone (Table 19) may indicate a potential release, but the upgradient locations of these two points from any identified SWMU and the lack of additional ground-water data in these areas suggest otherwise. Based on the identified release from SWMU 10, wastewater pipeline break (Section 4.10) and the potential for exposure to SWMU 5, silt pile (Section 4.5) however, Versar believes that additional ground-water data should be collected to fully define pollutant migration and the quality of ground water from these areas.

In the former production area, the groundwater was predominately found to contain elevated levels of metals and volatile organics; some semivolatile organics were also detected. No PAHs, pesticides, or PCBs were found in any of these samples. Typically, downgradient sampling locations showed higher concentrations of volatile organic fractions indicating potential pollutant migration toward the river. In general, contaminants of concern were found in each ground-water sample collected in the former production area, suggesting the need for further investigation.

TABLE 19
GROUND WATER SAMPLING RESULTS^a
CIBA-GEIGY SAMPLING VISIT
June 11, 1987

	Sample Numbers						
	GW1	GW2/2A ^b	GW3	GW4	GW5	GW6	GW8
<u>Metals (ppb)</u>							
Antimony	ND(58)	ND(58)	ND(58)	ND(58)	ND(58)	ND(58)	ND(58)
Arsenic	ND(2.8)	609/365	[6.1]	ND(2.8)	395	[4.0]	ND(2.8)
Barium	[43]	[48]/ND	[187]	ND(30)	242	[87]	ND(30)
Cadmium	ND(4.7)	ND(4.7)	ND(4.7)	ND(4.7)	ND(4.7)	ND(4.7)	ND(4.7)
Chromium	ND(9.4)	13/ND	ND(9.4)	15	21	ND(9.4)	ND(9.4)
Lead	[1.7]	17/ND	ND(1.7)	178	93	[2.3]	5.18
Manganese	1,060	593/577	ND(6.5)	64	838	5,470	18
Mercury	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)
Nickel	ND(28)	ND(28)	ND(28)	ND(28)	ND(28)	ND(28)	ND(28)
Selenium	[1.3]	[1.0]/ [0.25]	ND(1.7)	ND(1.7)	ND[3.3]	ND(1.7)	ND(1.7)
Silver	ND(7.7)	ND(7.7)	ND(7.7)	ND(7.7)	ND(7.7)	ND(7.7)	ND(7.7)
Zinc	13,800	13,600/195	ND(20)	2,510	12,600	1,000	5,360
<u>Volatile Organics (ppb)</u>							
Methylene Chloride	ND(5)	7J/8J	11J	ND(5)	ND(50)	1J	2J
Acetone	ND(10)	190/240	ND(100)	ND(10)	ND(100)	ND(10)	2J
Toluene	2J	22J/ND	ND(50)	ND(5)	27J	ND(5)	ND(5)
Tetrachloroethylene	2J	ND(25)	ND(50)	ND(5)	ND(50)	ND(5)	ND(5)
Total xylenes	94	780/460	1,300	ND(5)	46J	ND(5)	ND(5)
Chlorobenzene	ND(5)	14J/ND	1,800	ND(5)	1,100	ND(5)	ND(5)
Ethylbenzene	27	540/ND	ND(50)	ND(5)	ND(50)	ND(5)	ND(5)
1,2-Dichloroethylene	ND(5)	ND(25)	ND(50)	ND(5)	210	ND(5)	ND(5)
Vinyl chloride	ND(10)	ND(50)	ND(100)	ND(10)	66J	ND(10)	ND(10)
Benzene	ND(5)	ND(25)	24J	ND(5)	ND(50)	ND(5)	ND(5)
<u>Semivolatile Organics (ppb)</u>							
2,4-Dimethylphenol	ND(10)	ND(50)	21	ND(10)	ND(10)	ND(10)	ND(10)
1,2-Dichlorobenzene	10	ND(50)	ND(10)	ND(10)	230	ND(10)	ND(10)
1,4-Dichlorobenzene	ND(10)	ND(50)	ND(10)	ND(10)	24	ND(10)	ND(10)
2-Chlorophenol	ND(10)	ND(50)	13	ND(10)	29	ND(10)	ND(10)
Phenol	ND(10)	2,000/2,400	25	ND(10)	ND(10)	ND(10)	ND(10)
Fluoranthene	ND(10)	ND(50)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Pyrene	ND(10)	ND(50)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)

(CONTINUED)

TABLE 19
GROUND WATER SAMPLING RESULTS^a
CIBA-GEIGY SAMPLING VISIT
June 11, 1987
(Continued)

	Sample Numbers						
	GW1	GW2/2A	GW3	GW4	GW5	GW6	GW8
Semivolatile Organics (ppb) (continued)							
Butylbenzylphthalate	ND(10)	ND(50)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Bis(2-ethylhexyl)							
phthalate	ND(10)	ND(50)	ND(10)	24	15	ND(10)	ND(10)
4-Chloroaniline	ND(10)	ND(50)	130	ND(10)	ND(10)	ND(10)	ND(10)
Dibenzofuran	ND(10)	ND(50)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)

ND() - Compound not detected at level indicated

B - Compound was detected in the QC blank

J - Presence of compound detected, value estimated.

[] - Result is a value greater than or equal to instrument detection limit,
but less than contract required detection limit.

^aResults are a compilation of the reported analytical data. HSL analytical parameters which do not appear in this table were not detected by the respective contract laboratories. Metals analyses were performed by Cambridge Analytical Associates, Boston, Massachusetts on 7/20/87. Organic analyses were performed by ETC-Toxicon, Baton Rouge, Louisiana, as reported on 7/31/87.

^bDuplicate analysis.

Levels of arsenic were found to exceed the maximum contaminant level (MCL) of 50 ppb pursuant to 40 CFR Parts 141 and 146 in GW2/2A and GW5. The MCL for lead (50 ppb) was exceeded in GW4 and GW5. Secondary EPA water quality criteria for manganese (50 ppb) and zinc (5,000 ppb) were exceeded in GW1, GS2/2A, GW4 (manganese only), and GW5. Although ground water in the vicinity of Ciba-Geigy is not used as a domestic source, drinking water standards are used for comparison to establish potential threats. Due to the dispersion of metals in the ground water throughout the production area, it was not possible to define a particular source for these contaminants.

Toluene (2 ppb), tetrachlorethylene (2 ppb), total xylenes (94 ppb), ethylbenzene (27 ppb), and 1,2-dichlorobenzene (10 ppb) were all detected in the ground water sample (GW1) collected near SWMU 11 (former toluene release). Tetrachlorethylene levels, although estimated, exceeded the EPA secondary Clean Water Act drinking water criteria of 0.88 ppb and the proposed recommended maximum contaminant level (RMCL) of zero. Significantly higher levels of these compounds (except tetrachlorethylene and dichlorobenzene) including methylene chloride (8 ppb), acetone (240 ppb), chlorobenzene (14 ppb), and phenol (2,400 ppb) were found in another upgradient production area ground-water pipe (GW2). The third upgradient location sampled (GW4) showed the presence of bis(2-ethylhexyl)phthalate (24 ppb) only, which is consistent with the fact that Ciba-Geigy has reworked this area (location of former underground storage tanks) and removed any potential source for (solvent) contamination.

The highest levels of toluene (27 ppb), total xylenes (1,300 ppb), chlorobenzene (1,800 ppb), 1,2-dichloroethylene (210 ppb), vinyl chloride (66 ppb), 2,4-dimethyl phenol (21 ppb), 1,2-dichlorobenzene (230 ppb), 1,4-dichlorobenzene (24 ppb), and 2-chlorophenol (29 ppb) were found in the two downgradient pipe locations (GW3, GW5) adjacent to the Pawtuxet River. Xylenes were found to exceed the 10-day health advisory level (HAL) of 200 ppb based on Safe Drinking Water Act criteria for the

prevention of human health risks due to ingestion of contaminated water. Chlorobenzene and 1,2-dichloroethylene were found to exceed the proposed RMCLs of 60 ppb and 70 ppb respectively. Vinyl chloride, although an estimated value, was also found to exceed the proposed RMCL of zero and the proposed MCL of 1.0 ppb.

The higher concentration of organic contaminants near the river potentially indicates pollutant migration towards this outlet. As with inorganic compounds, however, the dispersion of organics in the ground water throughout the production area indicates more than one source. Versar believes that the inorganic and organic levels encountered represent significant releases to the environment which should be further investigated to define the extent of contamination and determine the need for remedial measures.

7.0 CONCLUSIONS AND RECOMMENDATIONS

During the preliminary review and visual site inspection, 11 solid waste management units and 5 areas of concern at the former Ciba-Geigy chemical manufacturing plant were identified through document review, personal interviews and the collection of onsite information. Very little information has been developed by Ciba-Geigy for many of these units and areas. Analytical data to support the evidence of release and identify potential releases were provided as a result of conducting a sampling visit at the Ciba-Geigy facility. Overall, the information obtained revealed that Ciba-Geigy has a history of releases to air, soil, surface water, and ground-water media. The subsequent effects of these releases to human health and the environment has not been fully documented however.

The most recent information generated regarding releases from the facility has been the identification of inorganic and organic contaminants in the ground water beneath the former production area. It may be difficult to ascertain whether these releases were contributed to by SWMUs in the area, but there is some indication that SWMUs have contributed to subsurface contamination. Subsurface soils downgradient of the former main tank farm (SWMU 2 and SWMU 3) were found to contain elevated levels of PCBs. SWMU 11, former Building 11, was identified as the location of a toluene release. Additionally other areas where contaminants may have been introduced include the under ground tank farm, process sewer lines, and process buildings.

According to EPA, Section 3008(h) of RCRA indicates that the United States Congress did not intend to limit EPA's authority by implementing corrective action for releases from discernible units only. Unlike Section 3004(u) (continuing releases from permitted facilities), Section 3008(h) broadly authorizes corrective action for any release into the environment from a "facility" authorized to operate under Section 3005(e) (interim status). It does not require the Agency to find that a release of hazardous waste or hazardous constituents originated in a discernible solid waste management unit.

Versar concludes that the presence of contaminants in the ground water can be considered a release containing hazardous constituents and that Section 3008(h) authority is applicable to site releases from units that may not be SWMUs. Additionally, other releases to the subsurface, such as PCB contaminated soils, would likewise be subject to Section 3008(h) authority.

Releases to the air and surface water from Ciba-Geigy have been documented throughout the plant's history. Analytical information regarding air releases have been provided by RIDEM. The data indicates that previous air emissions have not resulted in widespread contamination surrounding Ciba-Geigy nor do the levels encountered represent a significant health risk. The potential for continuing releases to the air seems to be negligible at this point, especially since the facility ceased operations over one year ago.

Releases to the Pawtuxet River from Ciba-Geigy are probably the most difficult to track. The steady flow of the river quickly takes surface discharges or releases downstream. Although hazardous constituents associated with former chemical manufacturing processes at Ciba-Geigy have been identified in the river water and sediments, it has not been possible to identify a particular source for these contaminants. There currently appears to be potential for continuing releases to the river from Ciba-Geigy. The ground water beneath the former production area contributes to the river flow and has been shown to be contaminated. Also there are areas of the site, including the wastewater pipeline breaks, where no information has been provided regarding potential surface runoff contamination. The potential for exposure to hazardous constituents should be expected to be highest via the surface water migration pathway.

SWMUs for which little information exists and which should be considered for the potential of continuing release include the following:

- SWMU 7 - Chlorosulfonic Acid Spill Area
- SWMU 8 - Potassium Ferrocyanide Spill Area
- SWMU 9 - Wastewater Pipeline Break (January 12, 1982)
- SWMU 10 - Wastewater Pipeline Break (September 7, 1983)

Additionally, units that have been investigated which require further study include the following:

- SWMU 2 - 6,000-gallon Hazardous Waste Storage Tank
- SWMU 3 - 7,500-gallon 90-day Accumulation Tank
- SWMU 5 - Former Silt Pile
- SWMU 11 - Building 11 Area

SWMU 2, SWMU 3, and SWMU 11 should all be included in a comprehensive investigation of the former production area of the facility. As a result of the PR, VSI, and SV of the Ciba-Geigy facility and guidance from EPA Region I, Versar recommends that a RCRA facility investigation (RFI) should be initiated to address all of the problem areas discussed in the final RFA report.

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ATTACHMENT A

ANALYTICAL RESULTS FOR SAMPLES COLLECTED DURING
SAMPLING VISIT
AT CIBA-GEIGY, CRANSTON, RHODE ISLAND
June 11-12, 1987

TABLE A
SAMPLE IDENTIFICATION

Versar Field Sample I.D.	EPA Identification	Analytical Parameters
GW8, ground water	AH 641, MAD 062	VOA, B/N/A, Metals
SS3, surface soil	AH 642, MAD 062	Full HSL
GW6, ground water	AH 643, MAD 063	VOA, B/N/A, Metals
GW4, ground water	AH 644, MAD 064	Full HSL
EB1, equipment blank	AH 645, MAD 065	Full HSL
SD3, sediment	AH 646, MAD 066	Full HSL
GW3, ground water	AH 647, MAD 067	Full HSL
GW5, ground water	AH 648, MAD 068	Full HSL
GW3, ground water	AH 649, MAD 069	Full HSL
SS2, subsurface soil	AH 650	VOA, B/N/A, Pest/PCB
GW2A, ground water	AH 651, MAD 070	Full HSL
GW1, ground water	AH 652, MAD 149	Full HSL
BG1, background surface soil	AH 653, MAD 150	Full HSL
SS1A, subsurface soil	AH 654	VOA, B/N/A, Pest/PCB
SS1, subsurface soil	AH 655	VOA, B/N/A, Pest/PCB
SD4, sediment	AH 656, MAD 153, 3020A-02	Full HSL, TCDD, TCDF
SD2, sediment	AH 657, MAD 151	Full HSL
SD1, sediment	AH 658, MAD 152 3020A-02	Full HSL TCDD, TCDF



Ciba ~~Lab~~
Geigy

Date Reported: July 9, 1987
Cal ID'S: S9688-S9689
Cal Ticket No.: 3020A-1
Date Received: 6/15/87
SAS 3020A

Mr. Edward Taylor
USEPA Region I
Environmental Services Division
60 Westview Street
Lexington, MA 02173

Dear Mr. Taylor:

Enclosed are data summaries and documentation for samples comprising SAS 3020A received June 15, 1987. The soil samples were logged in under ENSECO-Cal Lab numbers S9688 thru S9689. The samples were analyzed for 2,3,7,8-TCDF and 2,3,7,8-TCDD. The cross correlation of ID numbers is shown below:

<u>CAL ID</u>	<u>EPA ID</u>
S9688	3020A-01
S9689	3020A-02

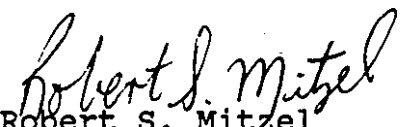
Sample 3020A-01 was analyzed as a sample, native spike, and native spike duplicate.

We encountered no problems with the analysis of these samples.

If you should have any question, please don't hesitate to give us a call.

Sincerely,


Michael W. Orbanosky
Director GC/MS Services


Robert S. Mitzel
GC/MS Lab supervisor

cc: SMO
File

237B-TCDF & TCDD DATA REPORT
 ENSECO-Cal Lab
 2544 Industrial Blvd.
 W. Sacramento, CA 95691



Lab: ENSECO-Cal Lab
 Case No. 3020A
 Batch/Shipment No.

Report Date: 6-29-87
 Column: SP-2331

TCDF DATA

Cal Labs ID	Sample Number	Aliquot C Wet Wt. U (grams)	PPB TCDF Meas	PPB TCDF Det. Lmt	Inst ID	Date	Time	304/ 306	316/ 318	304	306	316	318	Comments
S9688MB	METHOD BLANK	Y 10.00	ND	0.077	5	06/29/87	21:19:00	-	0.77	-	-	80820	104872	
S9688	3020A-01	Y 10.25	ND	0.034	5	06/29/87	22:10:00	-	0.80	-	-	188832	236992	
S9688NS	3020A-01NS	Y 10.46	0.88	-	5	06/29/87	22:33:00	0.73	0.79	58324	80045	151814	191582	92% Recovery
S9688NSDUP	3020A-01NSDUP	Y 10.64	0.94	-	5	06/29/87	22:59:00	0.73	0.81	45276	61985	109916	135832	101% Recovery
S9689	3020A-02	Y 10.58	-	0.078	5	06/29/87	23:22:00	-	0.78	-	-	83434	106626	

TCDD DATA

Cal Labs ID	Sample Number	Aliquot C Wet Wt. U (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/ 322	332/ 334	PPB Surrq Meas	Surrq % Acc'c	320	322	257	328*	332	334	Comments
S9688MB	METHOD BLANK	Y 10.00	ND	0.067	5	06/29/87	21:19:00	-	0.76	1.0	101	-	-	-	59348	57496	75440	
S9688	3020A-01	Y 10.25	ND	0.023	5	06/29/87	22:10:00	-	0.79	0.97	99	-	-	-	139116	140009	176157	
S9688NS	3020A-01NS	Y 10.46	0.72	-	5	06/29/87	22:33:00	0.73	0.78	0.94	98	35070	48082	13332	119055	119240	153181	76% Recovery
S9688NSDUP	3020A-01NSDUP	Y 10.64	0.81	-	5	06/29/87	22:59:00	0.75	0.76	0.95	101	30600	40544	11408	92015	88572	116086	86% Recovery
S9689	3020A-02	Y 10.58	ND	0.083	5	06/29/87	23:22:00	-	0.76	0.94	99	-	-	-	55626	54796	71804	

MB = Method Blank
 P = Partial Scan/Confirmatory Analysis
 NS = Native TCDD Spike
 D = Duplicate/Fortified Field Blank
 RI = Re-injection
 CU = Clean Up
 FB = Field Blank
 ND = Not Detected
 DL = Detection Limit
 RX = Re-extraction
 MPC = Maximum Possible Concentration

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

Prepared by: RJA
 Approved by: Bsm

Date: 7/6/87



Cambridge Analytical Associates

1106 Commonwealth Avenue / Boston, Massachusetts 02215 / (617) 232-2207



July 20, 1987

Mrs. Linda Boynton
U.S. Environmental Protection Agency
Contract Laboratory Program
Sample Management Office (SMO)
P. O. Box 818
Alexandria, VA 22313

Dear Linda:

Enclosed is the sample data package for Case 7410 received by Cambridge Analytical Associates under Contract Number 68-01-7315 (Inorganics Analysis). Samples were received on June 16, 1987 and analyzed under QC number 8706182.

I apologize for the delay in forwarding this package to you. Please call if you have any questions.

Sincerely,

Joan M. Lacava
Inorganic Chemistry Laboratory
Sample Custodian and
Data Manager

Enclosure

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U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
202/557-2490 ETS: 8-657-2492

Date: 87/28/87

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name: CAMBRIDGE Analytical Associates
Lab No. 785
Lab Receipt Date 06/16/87

Case No. Case 7412
A.C. Report No. 8706182

Sample Numbers

Lab No.	Lab ID No.	Lab No.	Lab ID No.
AD 262	8706182-21	MAD 150	8706182-11
AD 263	8706182-22	MAD 266	8706182-12
AD 264	8706182-23	MAD 151	8706182-13
AD 265	8706182-24	MAD 152	8706182-14
AD 267	8706182-25	MAD 153	8706182-15
AD 268	8706182-26		
AD 269	8706182-27		
AD 272	8706182-28		
AD 149	8706182-29		
AD 261	8706182-10		

80000101

ICP Interelement and background corrections applied? Yes ☒ No ☐
If yes, corrections applied before ☒ or after ☐ generation of raw data.
Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [100]). Indicate the analytical method used with F (for ICP), A (for Flame AA) or F (for Furnace AA).

U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10L).

E - Indicates a value estimated or not reported due to the presence of interferences. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

D - Indicates duplicate analysis is not within control limits.

C - Indicates the correlation coefficient for method of standard addition is less than 0.995

M - Indicates duplicate injection results exceeded control limits.

Indicate method used: F for ICP; A for Flame AA and F for Furnace.

0000

U.S. EPA Contract Laboratory Program
 Apple Management Office
 P.O. Box 818 - Alexandria, VA 22313
 703/557-2490 FAX: 8-557-2490

EPA Sample No.:
 1 KAD 2-2

Date: 07/20/87

INORGANIC AVAILABLE DATA SHEET

AS NAME: Cambridge Analytical Associates
 AS NO.: 755
 AS SAMPLE ID. NO.: 8704182-01

LAB NO. Case 7412

GC REPORT NO. 8706182

Elements Identified and Measured

Concentration: Low A Medium
 Matrix: Water Soil Sludge Other

RESULTS

1	Aluminum	121	F	13	Magnesium	21,6901	F
2	Antimony	550N	F	14	Manganese	18	F
3	Arsenic	2.80	F	15	Mercury	2.180	F
4	Barium	360	F	16	Nickel	260	F
5	Beryllium	2.10	F	17	Potassium	21,7201	F
6	Cadmium	4.70	F	18	Selenium	1.70	F
7	Calcium	13,738	F	19	Silver	7.70	F
8	Chromium	9.41	F	20	Sodium	12,703	F
9	Cobalt	330	F	21	Thallium	4.20	F
10	Copper	150	F	22	Vanadium	230	F
11	Iron	448	F	23	Zinc	5,318	F
12	Lead	5.16	F	24			

Acids pt

Percent solids (%)

Comments: For reporting results to EPA, standard result qualifications are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of each flag must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

Joan M. Lacava

00003

EPA Contract Laboratory Program
 Sample Management Office
 P.O. Box 819 - Alexandria, VA 22317
 (703) 557-2490 FAX: (703) 557-2492

EPA Sample No.:
 MAD 383

Date: 07/22/97

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Cambridge Analytical Associates
 LAB NO.: 703
 AB SAMPLE ID. NO.: 8708182-02

CASE NO. Case 7413
 GC REPORT NO. 8708182

Elements Identified and Measured

Concentration: Low Medium
 Matrix: Water Soil Sludge Dredge

ug/L

Aluminum	2,422	P	13	Magnesium	10,400	P
Antimony	5000	P	14	Manganese	3,470	P
Arsenic	14.30	P	15	Mercury	0.130	P
Barium	1970	P	16	Nickel	280	P
Beryllium	2.10	P	17	Potassium	16,300	P
Cadmium	4.70	P	18	Selenium	1.70	P
Calcium	48,600	P	19	Silver	7.70	P
Chromium	9.40	P	20	Sodium	15,600	P
Cobalt	380	P	21	Thallium	4.20	P
Copper	160	P	22	Vanadium	210	P
Iron	39,800	P	23	Zinc	1,000	P
Lead	12.20	P	24			

Sludge #1 Percent solids (%)

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Notes:

Lab Manager

Joan M. Lacava

U.S. EPA Contract Laboratory Program
 Waste Management Office
 P.O. Box 315 - Alexandria, VA 22313
 800/837-2495 FTB: 8-557-2493

EPA Sample No. 1
 MAD 264

Date: 07/19/87

INORGANIC ANALYSIS DATA SHEET

AN NAME: CAMBRIDGE Analytical Associates
 GR NO.: 788
 AS SAMPLE ID. NO.: 8724192-21

CASE NO. Case 7410
 QC REPORT NO. 8705182

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☐ Sludge ☐ Other ☐

RESULTS

1	Aluminum	1,410	P	13	Magnesium	14,240	P
2	Antimony	560	P	14	Manganese	64	P
3	Arsenic	2.80	P	15	Mercury	0.180	P
4	Barium	320	P	16	Nickel	290	P
5	Berillium	2.10	P	17	Potassium	13,000	P
6	Bismuth	4.71	P	18	Selenium	1.70	P
7	Calcium	19,700	P	19	Silver	7.70	P
8	Chromium	18	P	20	Sodium	19,200	P
9	Cobalt	380	P	21	Thallium	4.20	P
10	Copper	180	P	22	Vanadium	230	P
11	Iron	4,100	P	23	Zinc	2,910	P
12	Lead	173	P	24			

variance **NR**

Percent solids (X)

Footnotes: For reporting results to EPA, standard result qualifications are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of each flag must be explicit and identified on Cover Page, however.

Comments:

Lab Manager

John M. Lacava

00005

U.S. EPA Contract Laboratory Program
 Waste Management Office
 P.O. Box 818 - Alexandria, VA 22313
 (301) 557-2490 FTS: 5-557-2490

EPA Sample No. 1
 MAD 245

Date: 07/26/87

INORGANIC ANALYSIS DATA SHEET

ANALYST: Cambridge Analytical Associates

CASE NO. Case 7412

EW NO.: 755

AS SAMPLE ID, NO.: 8726182-04

QC REPORT NO. 8726182

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☒ Soil ☐ Sludge ☐ Other ☐

mg/L

1	Aluminum	1430	F	13	Magnesium	1170	F
2	Antimony	5200	F	14	Manganese	6.50	F
3	Arsenic	2.80	F	15	Mercury	0.160	F
4	Barium	381	F	16	Nickel	230	F
5	Beryllium	1.10	F	17	Potassium	15531	F
6	Cadmium	4.70	F	18	Selenium	1.70	F
7	Calcium	6290	F	19	Silver	7.70	F
8	Chromium	5.40	F	20	Sodium	1,2520	F
9	Cobalt	380	F	21	Thallium	4.20	F
10	Copper	130	F	22	Vanadium	230	F
11	Iron	450	F	23	Zinc	280	F
12	Lead	1.70	F	24			

yanide *PC*

Percent solids (%)

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Remarks:

Lab Manager

Jan M. Lacava

00006

U. S. EPA Contract Laboratory Program
 Sample Management Office
 12, Box 519 - Alexandria, VA 22313
 703-557-2492 FTS: 3-557-2492

EPA Sample No.:
 888 2-7

Date: 23/20/87

INCREASING ANALYSIS DATA SHEET

AS NAME: CAMBRIDGE Analytical Associates
 SW NO.: 788
 AS SAMPLE ID NO.: 8708192-25

CASE NO. Case 7412
 CD REPORT NO. 9788182

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☒ Soil ☐ Sludge ☐ Other ☐

u/L

1	Aluminum	1430	P	13	Magnesium	1170	P
2	Antimony	8800	P	14	Manganese	8.50	P
3	Arsenic	18.10	P	15	Mercury	0.180	P
4	Barium	11871	P	16	Nickel	280	P
5	Beryllium	2.10	P	17	Potassium	8840	P
6	Cadmium	4.70	P	18	Selenium	1.70	P
7	Calcium	6290	P	19	Silver	7.70	P
8	Chromium	9.40	P	20	Sodium	1.0500	P
9	Cobalt	380	P	21	Tellurium	4.20	P
10	Copper	180	P	22	Vanadium	230	P
11	Iron	480	P	23	Zinc	240	P
12	Lead	1.74E	P	24			

Notes: NR

Percent solids (%)

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

Jean M. Lacava

00007

U.S. EPA Contract Laboratory Program
 Sample Management Office
 P.O. Box 818 - Alexandria, VA 22317
 800/367-2492 FTS: 8-557-2492

EPA Sample No. 1
 MAD 2-5

Date: 27/22/87

INORGANIC ANALYSIS DATA SHEET

AB NAME: CAMBRIDGE Analytical Associates

CASE NO. Case 7412

GW NO.: 755

AB SAMPLE ID. NO.: 8725132-26

GC REPORT NO. 8725132

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☐ Sludge ☐ Other ☐

ug/L

1	Aluminum	18,932	P	13	Magnesium	5,742	P
2	Antimony	580K	P	14	Manganese	558	P
3	Arsenic	1,200 1,200 1,200 1,200	P	15	Mercury	2,180	P
4	Barium	242	P	16	Nickel	280	P
5	Beryllium	2.10	P	17	Potassium	9,282	P
6	Cadmium	4.70	P	18	Selenium	13.31	P
7	Calcium	37,988	P	19	Silver	7.78	P
8	Chromium	21	P	20	Sodium	51,020	P
9	Cobalt	380	P	21	Thallium	4.26	P
10	Copper	54	P	22	Vanadium	1411	P
11	Iron	33,038	P	23	Zinc	12,522	P
12	Lead	73	P	24			

yside nP

Percent solids (%)

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

Joan M. Laccina

0000

U. S. EPA Contract Laboratory Program
 Apple Management Office
 P.O. Box 818 - Alexandria, VA 22312
 202/887-2498 FAX: 8887-2496

EPRA Sample No.:
 MAD 859

Date: 07/28/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Cambridge Analytical Associates

CASE NO. Case 7412

QW NO.: 793

AS SAMPLE ID. NO.: 6786161-87

GL REPORT NO. 6786162

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☒ Soil ☐ Sludge ☐ Other ☐

ug/L

1	Aluminum	8,542	P	13	Magnesium	12,823	P
2	Antimony	380N	P	14	Manganese	593	P
3	Arsenic	409 + 201,209	P	15	Mercury	0.150	P
4	Barium	1491	P	16	Nickel	280	P
5	Beryllium	2.10	P	17	Potassium	11,322	P
6	Bismuth	4.70	P	18	Selenium	11.01	P
7	Calcium	9,813	P	19	Silver	7.70	P
8	Chromium	11	P	20	Sodium	144,023	P
9	Cobalt	388	P	21	Thallium	4.28	P
10	Copper	33	P	22	Vanadium	1471	P
11	Iron	8,233	P	23	Zinc	13,633	P
12	Lead	17	P	24			

vanilla PR

Percent solids (%)

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

John M. Lucawa

00009

U.S. EPA Contract Laboratory Program
 Waste Management Office
 P.O. Box 810 - Alexandria, VA 22313
 83/837-2490 FTS: 9-557-2490

EPA Sample No. 1
 MAD 272

Date: 07/20/87

INORGANIC ANALYSIS DATA SHEET

AS NAME: Cambridge Analytical Associates
 GW NO.: 785
 AS SAMPLE ID. NO.: 8726182-05

CASE NO. Case 7418
 GC REPORT NO. 8726182

Elements Identified and Measured

Concentration: Low _____ Medium _____
 Matrix: Water _____ Soil _____ Sludge _____ Other _____

8726

1	Aluminum	3,370	P	13	Magnesium	11,640	P
2	Antimony	150	P	14	Manganese	577	P
3	Arsenic	720.07 250 365	P	15	Mercury	0.120	P
4	Barium	320	P	16	Nickel	250	P
5	Beryllium	2.10	P	17	Potassium	11,350	P
6	Cadmium	4.70	P	18	Selenium	10.20	P
7	Calcium	12,600	P	19	Silver	7.70	P
8	Chromium	9.40	P	20	Sodium	144,000	P
9	Cobalt	380	P	21	Thallium	4.20	P
10	Copper	1210	P	22	Vanadium	1270	P
11	Iron	2,853	P	23	Zinc	195	P
12	Lead	1.70E	P	24			

yanide ^{NR}

Percent solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

John M. Lacava

00010

U.S. EPA Contract Laboratory Program
 Sample Management Office
 P.O. Box 818 - Alexandria, VA 22313
 800/367-2490 FTS: 87-557-2490

EPA Sample No.:
 MAD 149

Date: 07/20/87

INORGANIC ANALYSIS DATA SHEET

AS NAME: CAMBRIDGE Analytical Associates
 OW NO.: 785
 AS SAMPLE ID. NO.: 8706182-09

CASE NO. Case 7410
 JO REPORT NO.: 8706182

Elements Identified and Measured

Concentration: Low Medium
 Matrix: Water ☒ Soil ☐ Sludge ☐ Other ☐

ug/L

1	Aluminum	11631	P	13	Magnesium	13,1601	P
2	Antimony	580M	P	14	Manganese	1,060	P
3	Arsenic	2.80	P	15	Mercury	0.190	P
4	Barium	1431	P	16	Nickel	280	P
5	Beryllium	2.10	P	17	Potassium	12,0001	P
6	Cadmium	4.70	P	18	Selenium	01.31	P
7	Calcium	34,700	P	19	Silver	7.70	P
8	Chromium	9.48	P	20	Sodium	10,300	P
9	Cobalt	380	P	21	Thallium	4.20	P
0	Copper	160	P	22	Vanadium	230	P
1	Iron	3,200	P	23	Zinc	13,000	P
2	Lead	01.71	P	24			

yanide *NR*

Percent solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

John M. Lacava

00011

U.S. EPA Contract Laboratory Program
 Sample Management Office
 1001 Bay St - Alexandria, VA 22304
 202/557-2492 FTS: 84557-2492

EPA Sample No. 7413
 MAD 061

Date: 07/20/87

INORGANIC ANALYSIS DATA SHEET

AG NAME: Cambridge Analytical Associates
 SW NO.: 795
 AG SAMPLE ID. NO.: 8726192-10

CASE NO. Case 7413
 GC REPORT NO. 8726192

Elements Identified and Measured

Concentration: Low ~~Medium~~
 Matrix: Water ~~Soil~~ ~~Sludge~~ ~~Other~~

mg/kg dry weight

1	Aluminum	26,620	P	13	Magnesium	2,720	P
2	Antimony	137N	P	14	Manganese	971N	P
3	Arsenic	720A7 15 31	P	15	Mercury	720A7 15 38	P
4	Barium	622N	P	16	Nickel	320	P
5	Beryllium	2.20	P	17	Potassium	12,920	P
6	Bismuth	14	P	18	Selenium	11.51	P
7	Calcium	5,440	P	19	Silver	8.00	P
8	Chromium	407	P	20	Sodium	1,0920	P
9	Cobalt	430	P	21	Tellurium	4.40	P
10	Copper	542N	P	22	Vanadium	121	P
11	Iron	64,800	P	23	Zinc	11,120	P
12	Lead	5.25N	P	24			

yanide Percent solids (%) 17

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Interests:

Lab Manager

Joan M. Lacave

00012

U. S. EPA Contract Laboratory Program
 Waste Management Office
 P.O. Box 918 - Alexandria, VA 22313
 813/557-2492 FTB: 813/557-2492

EPA Sample No. 1
 MAD 183

Date: 27/22/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME: CAMBRIDGE Analytical Associates
 CW NO.: 782
 AS SAMPLE ID. NO.: 8704182-11

DATE NO. Case 7418
 QC REPORT NO. 8704182

Elements Identified and Measured

Concentration: Low X Medium
 Matrix: Water _____ Soil X Sludge _____ Other _____

mg/kg dry weight

1	Aluminum	5,120	P	13	Magnesium	1,478	P
2	Antimony	180	P	14	Manganese	1730	P
3	Arsenic	3.5 1.0 12001	P	15	Mercury	7.01 0.1 2.1	P
4	Barium	1400N	P	16	Nickel	18.31	P
5	Beryllium	2.490	P	17	Potassium	18331	P
6	Cadmium	1.2	P	18	Selenium	10.231	P
7	Calcium	2,718	P	19	Silver	1.80	P
8	Chromium	14	P	20	Sodium	2460	P
9	Cobalt	9.20	P	21	Thallium	0.980	P
10	Copper	290	P	22	Vanadium	32	P
11	Iron	13,400	P	23	Zinc	2825	P
12	Lead	2.400EN	P	24			

anion

Percent solids (%) 88

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

00013

Lab Manager

Joan M. Lacava

U.S. EPA Contract Laboratory Program
 Sample Management Office
 10, Box 518 - Alexandria, VA 22315
 703/557-2492 FAX: 8-557-2492

EPA Sample No. 1
 MAD 356

Date: 07/20/97

INORGANIC ANALYSIS DATA SHEET

LAB NAME: CAMERIDGE Analytical Associates
 Lab No.: 795
 Lab SAMPLE ID. NO.: 8708182-12

OPSE NO. Case 7410
 QC REPORT NO. 5726182

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☒ Sludge ☐ Other ☐

mg/kg dry weight

1	Aluminum	3,448	F	13	Magnesium	11,103	F
2	Antimony	25N	F	14	Manganese	100N	F
3	Arsenic	7,200 15,400 ²⁹	F	15	Mercury	7,200 15,400 ²⁹	F
4	Barium	1181N	F	16	Nickel	7.50	F
5	Beryllium	2.590	F	17	Potassium	15080	F
6	Cadmium	1.30	F	18	Selenium	10,060	F
7	Calcium	13720	F	19	Silver	2.10	F
8	Chromium	14	F	20	Sodium	2590	F
9	Cobalt	110	F	21	Tellurium	1.20	F
10	Copper	16N	F	22	Vanadium	17.90	F
11	Iron	9,382	F	23	Zinc	520	F
12	Lead	17N	F	24			

Vehicle Percent solids (%) 73

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

John M. Lachance

00014

U.S. EPA Contract Laboratory Program
 Sample Management Office
 10, Box 813 - Alexandria, VA 22313
 800/557-2498 FTS: 87-557-2498

EPA Sample No. 1
 MAD 151

Date: 07/22/87

INORGANIC ANALYSIS DATA SHEET

AN NAME: CAMBRIDGE Analytical Associates
 CW NO.: 785
 AS SAMPLE ID. NO.: 8726182-13

CASE NO. Case 7412
 CC REPORT NO. 8726192

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☒ Sludge ☐ Other ☐

mg/kg dry weight

1	Aluminum	11,382	F	13	Magnesium	2,820	F
2	Antimony	32N	P	14	Manganese	322N	F
3	Arsenic	610 11,382	F	15	Mercury	613 to 11,382 22057	F
4	Barium	132N	F	16	Nickel	150	F
5	Beryllium	11.31	F	17	Potassium	11,352N	F
6	Calcium	3.0	F	18	Selenium	12.341E	F
7	Calcium	12,853	F	19	Silver	4.20	F
8	Chromium	310	F	20	Sodium	5451	F
9	Cobalt	220	F	21	Thallium	2.20	F
10	Copper	250N	F	22	Vanadium	33	F
11	Iron	19,202	F	23	Zinc	5155	F
12	Lead	185N	F	24			

Vanice

Percent solids (%) 39

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

John M. Macavon

00015

U.S. EPA Contract Laboratory Program
 Waste Management Office
 P.O. Box 915 - Alexandria, VA 22304
 813/557-2400 FAX: 813/557-2490

EPA Sample No.:
 WAD 152

Date: 07/20/87

INORGANIC ANALYSIS DATA SHEET

ANALYST: CAMERLON Analytical Associates
 IN NO.: 785
 AS SAMPLE ID, NO.: 8706162-14

CASE NO. Case 7-12

CC REPORT NO. 8706162

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☒ Sludge ☐ Other ☐

mg/kg (dry weight)

1	Aluminum	5,222	P	13	Magnesium	11,533	P
2	Antimony	445	P	14	Manganese	5215	P
3	Arsenic	1777 ²⁰⁵⁷ _[165]	P	15	Mercury	10 2.75 ^{0.700157}	P
4	Barium	1838	P	16	Nickel	133	P
5	Beryllium	11.83	P	17	Potassium	21,142	P
6	Cadmium	15	P	18	Selenium	13.81	P
7	Calcium	12,578	P	19	Silver	5.18	P
8	Chromium	7-	P	20	Sodium	7813	P
9	Cobalt	260	P	21	Thallium	2.80	P
10	Copper	3818	P	22	Vanadium	2291	P
11	Iron	18,622	P	23	Zinc	3878	P
12	Lead	2378	P	24			

Percent solids (%) 32

Notes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Labels:

Lab Manager

John M. Lacave

000161

U.S. EPA Contract Laboratory Program
 Sample Management Office
 P.O. Box 916 - Alexandria, VA 22313
 202/557-2490 FTS: 8-557-2490

EPA Sample No. 1
 MAD 153

Date: 07/22/87

INORGANIC ANALYSIS DATA SHEET

AS NAME: CAMBRIDGE Analytical Associates

CASE NO. Case 7412

OW NO.: 785

AS SAMPLE ID. NO.: E705182-15

EC REPORT NO. 8726182

Elements Identified and Measured

Concentration: Low ☒ Medium ☐
 Matrix: Water ☐ Soil ☒ Sludge ☐ Other ☐

mg/kg dry weight

1	Aluminum	14,200	P	13	Magnesium	15,610	P
2	Antimony	450N	P	14	Manganese	266N	P
3	Arsenic	93 120N	P	15	Mercury	23 120N	P
4	Barium	220N	P	16	Nickel	220	P
5	Beryllium	11.7	P	17	Potassium	11,650	P
6	Cadmium	5.9	P	18	Selenium	11.3	P
7	Calcium	12,650	P	19	Silver	5.90	P
8	Chromium	1,080	P	20	Sodium	8030	P
9	Cobalt	290	P	21	Thallium	3.20	P
10	Copper	579N	P	22	Vanadium	43	P
11	Iron	28,120	P	23	Zinc	2,280E	P
12	Lead	359N	P	24			

anide

Percent solids (%) 26

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

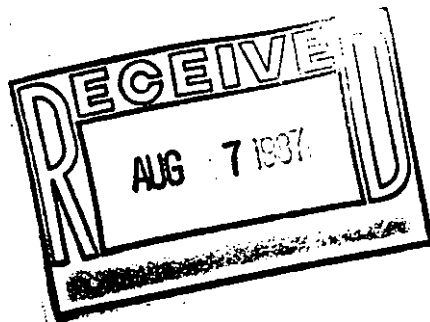
Remarks:

Lab Manager

John M. Macara

00017

ETC-TOXICON
July 31, 1987



Environmental Testing
and Certification Corp.
ETC-TOXICON

3213 Monterrey Boulevard
Baton Rouge, LA 70814
504-925-5012

USEPA
Contract Laboratory Program
SMO
P.O. Box 818
Alexandria, VA 22313

USEPA
EMSL-LV
P.O. Box 15027
Las Vegas, NV 89114
ATTN: Data Audit Staff

USEPA Region I
J.F.K. Federal Building
Room 1903
Boston, MA 02203
ATTN: Nancy Barmakian

RE: Contract No. 68-01-7148 1st Bid lot; Case No. 7410; QC Report No. 7410

Enclosed are the analytical data and quality assurance for Case No. 7410 received from USEPA Region I on June 15, 1987. The sample identifications and analyses requested are as follows:

<u>ETC/Toxicon Identification</u>	<u>USEPA Identification</u>	<u>Parameters Requested</u>
4182/02	AH641 Low Water	Purgeable & BNA HSL
4182/03	AH642 Low Soil	Full HSL
4182/04	AH643 Low Water	Purgeable & BNA HSL
4182/05	AH644 Low Water	Full HSL
4182/06	AH645 Low Water	Full HSL
4182/07	AH646 Low Soil	Full HSL
4182/08	AH647 Low Water	Full HSL
4182/09	AH648 Low Water	Full HSL
4182/10	AH649 Low Water	Full HSL
4182/11	AH650 Low Soil	Full HSL
4182/12	AH651 Low Water	Full HSL
4182/13	AH652 Low Water	Full HSL
4182/14	AH653 Low Soil	Full HSL
4182/15	AH654 Low Soil	Full HSL
4182/16	AH655 Low Soil	Full HSL
4182/17	AH656 Low Soil	Full HSL
4182/18	AH657 Low Soil	Full HSL
4182/19	AH658 Low Soil	Full HSL

Purgeable volatile fractions of samples AH656 and AH657 required medium level analysis. The surrogate recoveries for these samples were outside of QC Limits necessitating re-extraction and re-analysis of these samples. The same result was observed on re-analysis demonstrating a probable matrix effect in these samples affecting the recovery of the surrogate compounds.

The Base/Neutral/Acid fractions of samples AH643 and AH652 had low or no Acid Surrogate compound recoveries. These samples were re-extracted and re-analyzed with the same result demonstrating a probable matrix effect in these samples for these compounds.

These data were reviewed and no other unusual problems were encountered with these samples.

Sincerely,

Warren Lee Kidd
GC/MS Group Leader
Project Manager

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-19

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Wm L. Keld*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/OIL FACTOR: 1. PH 7.00
PERCENT MOISTURE: (NOT DECANTED) 62.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	26 U	78-87-5	1,2-DICHLOROPROPANE	13 U
74-83-9	BROMOMETHANE	26 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	13 U
75-01-4	VINYL CHLORIDE	26 U	79-01-6	TRICHLOROETHENE	13 U
75-00-3	CHLOROETHANE	26 U	124-48-1	DIBROMOCHLOROMETHANE	13 U
75-09-2	METHYLENE CHLORIDE	67 B	79-00-5	1,1,2-TRICHLOROETHANE	13 U
67-64-1	ACETONE	28	71-43-2	BENZENE	13 U
75-15-0	CARBON DISULFIDE	13 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	13 U
75-35-4	1,1-DICHLOROETHENE	13 U	110-75-8	2-CHLOROETHYL VINYLETHER	26 U
75-35-3	1,1-DICHLOROETHANE	13 U	75-25-2	BROMOFORM	13 U
156-60-5	TRANS-1,2-DICHLOROETHENE	13 U	108-10-1	4-METHYL-2-PENTANONE	26 U
67-66-3	CHLOROFORM	13 U	591-78-6	2-HEXANONE	26 U
107-06-2	1,2-DICHLOROETHANE	13 U	127-18-4	TETRACHLOROETHENE	13 U
78-93-3	2-BUTANONE	26 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	26 U
71-55-6	1,1,1-TRICHLOROETHANE	13 U	108-88-3	TOLUENE	30
56-23-5	CARBON TETRACHLORIDE	13 U	108-90-7	CHLOROBENZENE	13 U
108-05-4	VINYL ACETATE	26 U	100-41-4	ETHYLBENZENE	13 U
75-27-4	BROMODICHLOROMETHANE	13 U	100-42-5	STYRENE	13 U
				TOTAL XYLENES	13 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

50w
7410013741

8
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH658

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 6/15/87
DATE ANALYZED: 07/15/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED) 62.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
108-95-2	PHENOL	870 U	83-32-9	ACENAPHTHENE	870 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	870 U	51-28-5	2,4-DINITROPHENOL	4200 U
95-57-8	2-CHLOROPHENOL	870 U	100-02-7	4-NITROPHENOL	4200 U
541-73-1	1,3-DICHLOROBENZENE	870 U	132-64-9	DIBENZOFURAN	870 U
106-46-7	1,4-DICHLOROBENZENE	870 U	121-14-2	2,4-DINITROTOLUENE	870 U
100-51-6	BENZYL ALCOHOL	870 U	606-20-2	2,6-DINITROTOLUENE	870 U
95-50-1	1,2-DICHLOROBENZENE	870 U	84-66-2	DIETHYLPHTHALATE	870 U
95-48-7	2-METHYLPHENOL	870 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	870 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	870 U	86-73-7	FLUORENE	870 U
106-44-5	4-METHYLPHENOL	870 U	100-10-6	4-NITROANILINE	4200 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	870 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	4200 U
67-72-1	HEXACHLOROETHANE	870 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	870 U
98-95-3	NITROBENZENE	870 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	870 U
78-59-1	ISOPHORONE	870 U	118-74-1	HEXACHLOROENZENE	870 U
88-75-5	2-NITROPHENOL	870 U	87-86-5	PENTACHLOROPHENOL	4200 U
105-67-9	2,4-DIMETHYLPHENOL	870 U	85-01-8	PHENANTHRENE	700 J
65-85-0	BENZOIC ACID	4200 U	120-12-7	ANTHRACENE	870 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	870 U	84-74-2	DI-N-BUTYLPHTHALATE	870 U
120-83-2	2,4-DICHLOROPHENOL	870 U	206-44-0	FLUORANTHENE	1400
120-82-1	1,2,4-TRICHLOROBENZENE	870 U	129-00-0	PYRENE	1100
91-20-3	NAPHTHALENE	870 U	85-68-7	BUTYLBENZYLPHTHALATE	130 J
106-47-8	4-CHLOROANILINE	870 U	91-94-1	3,3'-DICHLOROENZIDINE	1700 U
87-68-3	HEXACHLOROBUTADIENE	870 U	56-55-3	BENZO(A)ANTHRACENE	870 U
59-50-7	4-CHLORO-3-METHYLPHENOL	870 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10000
91-57-6	2-METHYLNAPHTHALENE	870 U	218-01-9	CHRYSENE	790 J
77-47-4	HEXACHLOROCYCLOPENTADIENE	870 U	117-84-0	DI-N-OCTYL PHTHALATE	490 J
88-06-2	2,4,6-TRICHLOROPHENOL	870 U	205-99-2	BENZO(B)FLUORANTHENE	1000
95-95-4	2,4,5-TRICHLOROPHENOL	4200 U	207-08-9	BENZO(K)FLUORANTHENE	870 U
91-58-7	2-CHLORONAPHTHALENE	870 U	50-32-8	BENZO(A)PYRENE	520 J
88-74-4	2-NITROANILINE	4200 U	193-39-5	INDENO(1,2,3-CD)PYRENE	870 U
131-11-3	DIMETHYL PHTHALATE	870 U	53-70-3	DIBENZ(A,H)ANTHRACENE	870 U
208-96-8	ACENAPHTHYLENE	870 U	191-24-2	BENZO(G,H,I)PERYLENE	310 J
99-09-2	3-NITROANILINE	4200 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013742

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH658

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or (ug/Kg)
319-84-6	Alpha-BHC.....	105 U
319-85-7	Beta-BHC	105 U
319-86-8	Delta-BHC.....	105 U
58-89-9	Gamma-BHC (Lindane)	105 U
76-44-8	Heptachlor	105 U
309-00-2	Aldrin	105 U
1024-57-3	Heptachlor Epoxide.....	105 U
959-98-8	Endosulfan I	105 U
60-57-1	Dieldrin	211 U
72-55-9	4,4'-DDE	211 U
72-20-8	Endrin	211 U
33213-65-9	Endosulfan II	211 U
72-54-8	4,4'-DDD	211 U
1-31-07-8	Endosulfan Sulfate.....	211 U
50-29-3	4,4'-DDT	211 U
72-43-5	Methoxychlor	1053 U
53494-70-5	Endrin Ketone	211 U
57-74-9	Chlordane	1053 U
8001-35-2	Toxaphene	2105 U
12674-11-2	Aroclor-1016	1053 U
11104-28-2	Aroclor-1221	1053 U
11141-16-5	Aroclor-1232	1053 U
53469-21-9	Aroclor-1242	1053 U
12672-29-6	Aroclor-1248	1053 U
11097-69-1	Aroclor-1254	2105 U
11096-82-5	Aroclor-1260	2105 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs =

or Ws = 1.5

Vt =

5000

Vi = 3.0

Form I

52 *ell*
7410013743



ORGANICS TRAFFIC REPORT

Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOKION INC BAYVIEW RD, LA Attn: LEE KOO Transfer Ship To:																			
Sample Site Name/Code: COURTNEY'S FISH MARKET 1000 S. 10TH ST. #100 BIRMINGHAM, AL 35205		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: VLSA Sampling Personnel: D. G. Smith 703-750-3000 Sampling Date: 6/12/87 (Begin) 6/12/87 (End) 6/12/87		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td>1</td><td>8 oz</td></tr><tr><td>Soil/Sediment (VOA)</td><td>2</td><td>8 oz.</td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	1	8 oz	Soil/Sediment (VOA)	2	8 oz.	Other			⑪ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) no ice. samples were approx. 80°F. Custody seal intact. paperwork agrees.	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	1	8 oz																					
Soil/Sediment (VOA)	2	8 oz.																					
Other																							
Shipping Information Specify condition of samples: FED EX Name of Carrier: 6/12/87 Date Shipped: 2832004442 Airbill Number:																							

⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____	⑨ Sample Location
--	--------------------------

⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO	7410013713
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SAMPLE NUMBER
AH657RE

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-18RI

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY:

DATE SAMPLE RECEIVED: 06/15/87

Wanda L. Feld

VOLATILE COMPOUNDS

CONCENTRATION: MEDIUM
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/18/87
CONC/OIL FACTOR: 1. PH 7.00
PERCENT MOISTURE: (NOT DECANTED) 45.0

CAS NUMBER		UG/KG		CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	1800 U		78-87-5	1,2-DICHLOROPROPANE	910 U
74-83-9	BROMOMETHANE	1800 U		10061-02-6	TRANS-1,3-DICHLOROPROENE	910 U
75-01-4	VINYL CHLORIDE	1800 U		79-01-6	TRICHLOROETHENE	910 U
75-00-3	CHLOROETHANE	1800 U		124-48-1	DIBROMOCHLOROMETHANE	910 U
75-09-2	METHYLENE CHLORIDE	560 BJ		79-00-5	1,1,2-TRICHLOROETHANE	910 U
67-64-1	ACETONE	830 BJ		71-43-2	BENZENE	910 U
75-15-0	CARBON DISULFIDE	910 U		10061-01-5	CIS-1,3-DICHLOROPROPENE	910 U
75-35-4	1,1-DICHLOROETHENE	910 U		110-75-8	2-CHLOROETHYL VINYLETHYR	1800 U
75-35-3	1,1-DICHLOROETHANE	910 U		75-25-2	BROMOFORM	910 U
156-60-5	TRANS-1,2-DICHLOROETHENE	910 U		108-10-1	4-METHYL-2-PENTANONE	1800 U
67-66-3	CHLOROFORM	910 U		591-78-6	2-HEXANONE	1800 U
107-06-2	1,2-DICHLOROETHANE	910 U		127-18-4	TETRACHLOROETHENE	910 U
78-93-3	2-BUTANONE	2400 B		79-34-5	1,1,2,2-TETRACHLOROETHANE	1800 U
71-55-6	1,1,1-TRICHLOROETHANE	910 U		108-88-3	TOLUENE	910 U
56-23-5	CARBON TETRACHLORIDE	910 U		108-90-7	CHLOROBENZENE	910 U
108-05-4	VINYL ACETATE	1800 U		100-41-4	ETHYLBENZENE	910 U
75-27-4	BROMODICHLOROMETHANE	910 U		100-42-5	STYRENE	910 U
					TOTAL XYLENES	910 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

200
7410013718

AH 657

ORGANICS TRAFFIC REPORT

Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOXICOM INC BATON ROUGE, LA Attn: LEE KOD Transfer Ship To:	
Sample Site Name/Code: COUNTRY CLUB GOLF COURSE BOULEVARD OFFSHORE BOULEVARD EAST BAY		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment			
⑤ Regional Office: V&S SAR Sampling Personnel: D. Quintana 703-580-3000 (Name) (Phone) Sampling Date: 6/12/87 (Begin) (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. Number of Containers Approximate Total Volume Water (Extractable) Water (VOA) Soil/Sediment (Extractable) 1 8 oz Soil/Sediment (VOA) 2 8 oz Other		⑦ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) no ice samples per approx. 80° F. custody seal intact paperwork agrees.	
Shipping Information FED EX Name of Carrier 6/12/87 Date Shipped: 283204492 Airbill Number:					

⑧ Sample Description	⑨ Sample Location
<input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____	

(m) **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

7410013668

LAB COPY FOR RETURN TO SMO

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-18

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 69017148

DATA RELEASE AUTHORIZED BY: *Warren Lee Zeld*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: MEDIUM
 DATE EXTRACTED/PREPARED:
 DATE ANALYZED: 06/18/87
 CONC/DIL FACTOR: 1. PH 7.00
 PERCENT MOISTURE: (NOT DECANTED) 45.0

CAS NUMBER	UG/KG	CAS NUMBER	UG/KG
74-87-3	CHLOROMETHANE 1800 U	78-87-5	1,2-DICHLOROPROPANE 910 U
74-83-9	BROMOMETHANE 1800 U	10061-02-6	TRANS-1,3-DICHLOROPROENE 910 U
75-01-4	VINYL CHLORIDE 1800 U	79-01-6	TRICHLOROETHENE 910 U
75-00-3	CHLOROETHANE 1800 U	124-48-1	DIBROMOCHLOROMETHANE 910 U
75-09-2	METHYLENE CHLORIDE 460 BJ	79-00-5	1,1,2-TRICHLOROETHANE 910 U
67-64-1	ACETONE 1200 BJ	71-43-2	BENZENE 910 U
75-15-0	CARBON DISULFIDE 910 U	10061-01-5	CIS-1,3-DICHLOROPROPENE 910 U
75-35-4	1,1-DICHLOROETHENE 910 U	110-75-8	2-CHLOROETHYL VINYLETHER 1600 U
75-35-3	1,1-DICHLOROETHANE 910 U	75-25-2	BROMOFORM 910 U
156-60-5	TRANS-1,2-DICHLOROETHENE 910 U	108-10-1	4-METHYL-2-PENTANONE 1800 U
67-66-3	CHLOROFORM 910 U	591-78-6	2-HEXANONE 1800 U
107-06-2	1,2-DICHLOROETHANE 910 U	127-18-4	TETRACHLOROETHENE 910 U
78-93-3	2-BUTANONE 3300 3200 B	79-34-5	1,1,2,2-TETRACHLOROETHANE 1800 U
71-55-6	1,1,1-TRICHLOROETHANE 910 U	108-88-3	TOLUENE 910 U
56-23-5	CARBON TETRACHLORIDE 910 U	108-90-7	CHLOROBENZENE 910 U
108-05-4	VINYL ACETATE 1800 U	100-41-4	ETHYLBENZENE 910 U
75-27-4	BROMODICHLOROMETHANE 910 U	100-42-5	STYRENE 910 U
			TOTAL XYLENES 910 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
 VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
 THE SAMPLE.

DTC 6/18/87

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
 REPORTING QUALIFIERS.

FORM I

7410013609

B
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH657

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/17/87
OIL FACTOR: 25.0
PERCENT MOISTURE: (DECANTED) 45.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
108-95-2	PHENOL	15000 U	83-32-9	ACENAPHTHENE	15000 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	15000 U	51-28-5	2,4-DINITROPHENOL	73000 U
95-57-8	2-CHLOROPHENOL	15000 U	100-02-7	4-NITROPHENOL	73000 U
541-73-1	1,3-DICHLOROBENZENE	15000 U	132-64-9	OIBENZOFURAN	15000 U
106-46-7	1,4-DICHLOROBENZENE	15000 U	121-14-2	2,4-DINITROTOLUENE	15000 U
100-51-6	BENZYL ALCOHOL	15000 U	606-20-2	2,6-DINITROTOLUENE	15000 U
95-50-1	1,2-DICHLOROBENZENE	15000 U	84-64-2	DIETHYLPHTHALATE	15000 U
95-48-7	2-METHYLPHENOL	15000 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	15000 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	15000 U	86-73-7	FLUORENE	15000 U
106-44-5	4-METHYLPHENOL	15000 U	100-10-6	4-NITROANILINE	73000 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	15000 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	73000 U
67-72-1	HEXACHLOROETHANE	15000 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	15000 U
98-95-3	NITROBENZENE	15000 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	15000 U
78-59-1	ISOPHORONE	15000 U	118-74-1	HEXACHLOROBENZENE	15000 U
88-75-5	2-NITROPHENOL	15000 U	87-86-5	PENTACHLOROPHENOL	73000 U
105-67-9	2,4-DIMETHYLPHENOL	15000 U	85-01-8	PHENANTHRENE	15000 U
65-85-0	BENZOIC ACID	73000 U	120-12-7	ANTHRACENE	15000 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	15000 U	84-74-2	DI-N-BUTYLPHTHALATE	15000 U
120-83-2	2,4-DICHLOROPHENOL	15000 U	206-44-0	FLUORANTHENE	15000 U
120-82-1	1,2,4-TRICHLOROBENZENE	15000 U	129-00-0	PYRENE	15000 U
91-20-3	NAPHTHALENE	15000 U	85-68-7	BUTYLBENZYLPHTHALATE	15000 U
106-47-8	4-CHLOROANILINE	15000 U	91-94-1	3,3'-DICHLOROBENZIDINE	30000 U
87-68-3	HEXACHLOROBUTADIENE	15000 U	56-55-3	BENZO(A)ANTHRACENE	15000 U
59-50-7	4-CHLORO-3-METHYLPHENOL	15000 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	15000 U
91-57-6	2-METHYLNAPHTHALENE	15000 U	218-01-9	CHRYSENE	15000 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	15000 U	117-84-0	DI-N-OCTYL PHTHALATE	15000 U
88-06-2	2,4,6-TRICHLOROPHENOL	15000 U	205-99-2	BENZO(B)FLUORANTHENE	15000 U
95-95-4	2,4,5-TRICHLOROPHENOL	73000 U	207-08-9	BENZO(K)FLUORANTHENE	15000 U
91-58-7	2-CHLORONAPHTHALENE	15000 U	50-32-8	BENZO(A)PYRENE	15000 U
88-74-4	2-NITROANILINE	73000 U	193-39-5	INDENO(1,2,3-CD)PYRENE	15000 U
131-11-3	DIMETHYL PHTHALATE	15000 U	53-70-3	OIBENZ(A,H)ANTHRACENE	15000 U
208-96-8	ACENAPHTHYLENE	15000 U	191-24-2	BENZO(G,H,I)PERYLENE	15000 U
99-09-2	3-NITROANILINE	73000 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

8.24
7410013670

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH657

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	73 U
319-85-7	Beta-BHC	73 U
319-86-8	Delta-BHC.....	73 U
58-89-9	Gamma-BHC (Lindane)	73 U
76-44-8	Heptachlor	73 U
309-00-2	Aldrin	73 U
1024-57-3	Heptachlor Epoxide.....	73 U
959-98-8	Endosulfan I	73 U
60-57-1	Dieldrin	145 U
72-55-9	4,4'-DDE	145 U
72-20-8	Endrin	145 U
33213-65-9	Endosulfan II	145 U
72-54-8	4,4'-DDD	145 U
1-31-07-8	Endosulfan Sulfate.....	145 U
50-29-3	4,4'-DDT	145 U
72-43-5	Methoxychlor	727 U
53494-70-5	Endrin Ketone	145 U
57-74-9	Chlordane	727 U
8001-35-2	Toxaphene	1455 U
12674-11-2	Aroclor-1016	727 U
11104-28-2	Aroclor-1221	727 U
11141-16-5	Aroclor-1232	727 U
53469-21-9	Aroclor-1242	727 U
12672-29-6	Aroclor-1248	727 U
11097-69-1	Aroclor-1254	1455 U
11096-82-5	Aroclor-1260	1455 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = or Ws = 1.5 Vt = 5000 Vi = 3.0

Form 1

8.00
7410013671

ORGANICS TRAFFIC REPORT

① Case Number: <div style="border: 1px solid black; padding: 2px; margin: 2px;">7410</div> Sample Site Name/Code: <div style="border: 1px solid black; padding: 2px; margin: 2px;"> Baton Rouge, LA 1703-450-3000 6/12/87 2832004442 </div>	② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration ③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment	④ Ship To: <div style="border: 1px solid black; padding: 2px; margin: 2px;"> TOXICON INC BATON ROUGE, LA Attn: LEE KIDD Transfer Ship To: </div>																		
⑤ Regional Office: Sampling Personnel: <div style="border: 1px solid black; padding: 2px; margin: 2px;"> D. Justa 1703-450-3000 6/12/87 2832004442 </div>	⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 40%;">Number of Containers</th> <th style="width: 40%;">Approximate Total Volume</th> <th style="width: 20%;"></th> </tr> </thead> <tbody> <tr> <td>Water (Extractable)</td> <td></td> <td></td> </tr> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment (Extractable)</td> <td>1</td> <td>80%</td> </tr> <tr> <td>Soil/Sediment (VOA)</td> <td>2</td> <td>80%</td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> </tbody> </table>		Number of Containers	Approximate Total Volume		Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	1	80%	Soil/Sediment (VOA)	2	80%	Other		
Number of Containers	Approximate Total Volume																			
Water (Extractable)																				
Water (VOA)																				
Soil/Sediment (Extractable)	1	80%																		
Soil/Sediment (VOA)	2	80%																		
Other																				
⑦ Shipping Information Name of Carrier: <div style="border: 1px solid black; padding: 2px; margin: 2px;"> FED EX 6/12/87 2832004442 </div>	⑧ Analysis Lab: Rec'd by: Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <div style="border: 1px solid black; padding: 2px; margin: 2px;"> No ice. Samples kept approx. 80°F Custody Seal intact Repurposed (agreed) </div>																			
⑨ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____																				
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) <div style="border: 1px solid black; padding: 2px; margin: 2px;"> None </div>																				

7410013653

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-17RE

GC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Wm L. Kelly*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: MEDIUM
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/18/87
CONC/DIL FACTOR: 1. PH 7.00
PERCENT MOISTURE: (NOT DECANTED) 57.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	2300 U	78-87-5	1,2-DICHLOROPROPANE	1200 U
74-83-9	BROMOMETHANE	2300 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	1200 U
75-01-4	VINYL CHLORIDE	2300 U	79-01-6	TRICHLOROETHENE	1200 U
75-00-3	CHLOROETHANE	2300 U	124-48-1	DIBROMOCHLOROMETHANE	1200 U
75-09-2	METHYLENE CHLORIDE	1200 B	79-00-5	1,1,2-TRICHLOROETHANE	1200 U
67-64-1	ACETONE	2000 BJ	71-43-2	BENZENE	1200 U
75-15-0	CARBON DISULFIDE	1200 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1200 U
75-35-4	1,1-DICHLOROETHENE	1200 U	110-75-8	2-CHLOROETHYL VINYLETHYR	2300 U
75-35-3	1,1-DICHLOROETHANE	1200 U	75-25-2	BROMOFORM	1200 U
156-60-5	TRANS-1,2-DICHLOROETHENE	1200 U	108-10-1	4-METHYL-2-PENTANONE	2300 U
67-66-3	CHLOROFORM	1200 U	591-78-6	2-HEXANONE	2300 U
107-06-2	1,2-DICHLOROETHANE	1200 U	127-18-4	TETRACHLOROETHENE	1700
78-93-3	2-BUTANONE	4000 B	79-34-5	1,1,2,2-TETRACHLOROETHANE	2300 U
71-55-6	1,1,1-TRICHLOROETHANE	1200 U	108-88-3	TOLUENE	1200 U
56-23-5	CARBON TETRACHLORIDE	1200 U	108-90-7	CHLOROBENZENE	1200 U
108-05-4	VINYL ACETATE	2300 U	100-41-4	ETHYLBENZENE	1200 U
75-27-4	BROMODICHLOROMETHANE	1200 U	100-42-5	STYRENE	1200 U
				TOTAL XYLENES	1200 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013654



ORGANICS TRAFFIC REPORT

① Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: PXICON INC BAYON ROUGE, LA Attn: LEE KIDD Transfer Ship To:																			
Sample Site Name/Code: [Blank]		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: NEW ORLEANS Sampling Personnel: D. Guerra 703-450-3000 Sampling Date: 6/12 (Begin) 6/12 (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td>1</td><td>80z</td></tr><tr><td>Soil/Sediment (VOA)</td><td>2</td><td>80z</td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	1	80z	Soil/Sediment (VOA)	2	80z	Other			⑪ Analysis Lab: Rec'd by [Signature] Date Rec'd: 6/16/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) No ice. Samples Also analyzed 80°F Custody Seal intact Duplicate agreed	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	1	80z																					
Soil/Sediment (VOA)	2	80z																					
Other																							
⑦ Shipping Information <input checked="" type="checkbox"/> Express Name of Carrier: [Blank] Date Shipped: 6/12/87 Airbill Number: 2832004442																							
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) [Blank]																							

600cc

7410013590

LAB COPY FOR RETURN TO SMO

SAMPLE NUMBER
AH656

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-17

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Werner Lu Kahl*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: MEDIUM
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/18/87
CONC/DIL FACTOR: 1. PH 7.00
PERCENT MOISTURE: (NOT DECANTED) 57.0

CAS NUMBER		UG/KG		CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	2300	U	78-87-5	1,2-DICHLOROPROPANE	1200 U
74-83-9	BROMOMETHANE	2300	U	10061-02-6	TRANS-1,3-DICHLOROPROENE	1200 U
75-01-4	VINYL CHLORIDE	2300	U	79-01-6	TRICHLOROETHENE	1200 U
75-00-3	CHLOROETHANE	2300	U	124-48-1	DIBROMOCHLOROMETHANE	1200 U
75-09-2	METHYLENE CHLORIDE	370	BJ	79-00-5	1,1,2-TRICHLOROETHANE	1200 U
67-64-1	ACETONE	920	BJ	71-43-2	BENZENE	1200 U
75-15-0	CARBON DISULFIDE	1200	U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1200 U
75-35-4	1,1-DICHLOROETHENE	1200	U	110-75-8	2-CHLOROETHYL VINYLETHER	2300 U
75-35-3	1,1-DICHLOROETHANE	1200	U	75-25-2	BROMOFORM	1200 U
156-60-5	TRANS-1,2-DICHLOROETHENE	1200	U	108-10-1	4-METHYL-2-PENTANONE	2300 U
67-66-3	CHLOROFORM	1200	U	591-78-6	2-HEXANONE	2300 U
107-06-2	1,2-DICHLOROETHANE	1200	U	127-18-4	TETRACHLOROETHENE	1200 U
78-93-3	2-BUTANONE	3200	B	79-34-5	1,1,2,2-TETRACHLOROETHANE	2300 U
71-55-6	1,1,1-TRICHLOROETHANE	1200	U	108-88-3	TOLUENE	1200 U
56-23-5	CARBON TETRACHLORIDE	1200	U	108-90-7	CHLOROBENZENE	1200 U
108-05-4	VINYL ACETATE	2300	U	100-41-4	ETHYLBENZENE	1200 U
75-27-4	BROMODICHLOROMETHANE	1200	U	100-42-5	STYRENE	1200 U
					TOTAL XYLENES	1200 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

6000
7410013591

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH656

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW GPC CLEANUP YES X NO
DATE EXTRACTED/PREPARED: 06/15/87 SEPARATORY FUNNEL EXTRACTION YES
DATE ANALYZED: 07/18/87 CONTINUOUS LIQUID-LIQUID EXTRACTION YES
DIL FACTOR: 5.00
PERCENT MOISTURE: (DECANTED) 57.0

CAS NUMBER	UG/KG	CAS NUMBER	UG/KG
108-95-2 PHENOL	3800 U	83-32-9 ACENAPHTHENE	3800 U
111-44-4 BIS(2-CHLOROETHYL)ETHER	3800 U	51-28-5 2,4-DINITROPHENOL	19000 U
95-57-8 2-CHLOROPHENOL	3800 U	100-02-7 4-NITROPHENOL	19000 U
541-73-1 1,3-DICHLOROBENZENE	3800 U	132-64-9 DIBENZOFURAN	3800 U
106-46-7 1,4-DICHLOROBENZENE	3800 U	121-14-2 2,4-DINITROTOLUENE	3800 U
100-51-6 BENZYL ALCOHOL	3800 U	606-20-2 2,6-DINITROTOLUENE	3800 U
95-50-1 1,2-DICHLOROBENZENE	3800 U	84-66-2 DIETHYLPHTHALATE	3800 U
95-48-7 2-METHYLPHENOL	3800 U	7005-72-3 4-CHLOROPHENYL-PHENYLETHER	3800 U
39638-32-9 BIS(2-CHLOROISOPROPYL)ETHER	3800 U	86-73-7 FLUORENE	3800 U
106-44-5 4-METHYLPHENOL	3800 U	100-10-6 4-NITROANILINE	19000 U
621-64-7 N-NITROSO-DI-N-PROPYLAMINE	3800 U	534-52-1 4,6-DINITRO-2-METHYLPHENOL	19000 U
67-72-1 HEXACHLOROETHANE	3800 U	86-30-6 N-NITROSODIPHENYLAMINE (1)	3800 U
98-95-3 NITROBENZENE	3800 U	101-55-3 4-BROMOPHENYL-PHENYLETHER	3800 U
78-59-1 ISOPHORONE	3800 U	118-74-1 HEXACHLOROEBENZENE	3800 U
88-75-5 2-NITROPHENOL	3800 U	87-86-5 PENTACHLOROPHENOL	19000 U
105-67-9 2,4-DIMETHYLPHENOL	3800 U	85-01-8 PHENANTHRENE	4300
65-85-0 BENZOIC ACID	19000 U	120-12-7 ANTHRACENE	3800 U
111-91-1 BIS(2-CHLOROETHOXY)METHANE	3800 U	84-74-2 DI-N-BUTYLPHTHALATE	3800 U
120-83-2 2,4-DICHLOROPHENOL	3800 U	206-44-0 FLUORANTHENE	6500
120-82-1 1,2,4-TRICHLOROBENZENE	3800 U	129-00-0 PYRENE	6500
91-20-3 NAPHTHALENE	3800 U	85-68-7 BUTYLBENZYLPHTHALATE	3800 U
106-47-8 4-CHLOROANILINE	3800 U	91-94-1 3,3'-DICHLOROBENZIDINE	7700 U
87-68-3 HEXACHLOROBUTADIENE	3800 U	56-55-3 BENZO(A)ANTHRACENE	3800 U
59-50-7 4-CHLORO-3-METHYLPHENOL	3800 U	117-81-7 BIS(2-ETHYLHEXYL)PHTHALATE	2000 J
91-57-6 2-METHYLNAPHTHALENE	3800 U	218-01-9 CHRYSENE	3700 J
77-47-4 HEXACHLOROCYCLOPENTADIENE	3800 U	117-84-0 DI-N-OCTYL PHTHALATE	3800 U
88-06-2 2,4,6-TRICHLOROPHENOL	3800 U	205-99-2 BENZO(B)FLUORANTHENE	3400 J
95-95-4 2,4,5-TRICHLOROPHENOL	19000 U	207-08-9 BENZO(K)FLUORANTHENE	3100 J
91-58-7 2-CHLORONAPHTHALENE	3800 U	50-32-8 BENZO(A)PYRENE	2700 J
88-74-4 2-NITROANILINE	19000 U	193-39-5 INDENO(1,2,3-CO)PYRENE	1500 J
131-11-3 DIMETHYL PHTHALATE	3800 U	53-70-3 DIBENZ(A,H)ANTHRACENE	3800 U
208-96-8 ACENAPHTHYLENE	3800 U	191-24-2 BENZO(G,H,I)PERYLENE	1800 J
99-09-2 3-NITROANILINE	19000 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013592

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH656

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	93 U
319-85-7	Beta-BHC	93 U
319-86-8	Delta-BHC.....	93 U
58-89-9	Gamma-BHC (Lindane)	93 U
76-44-8	Heptachlor	93 U
309-00-2	Aldrin	93 U
1024-57-3	Heptachlor Epoxide.....	93 U
959-98-8	Endosulfan I	93 U
60-57-1	Dieldrin	186 U
72-55-9	4,4'-DDE	186 U
72-20-8	Endrin	186 U
33213-65-9	Endosulfan II	186 U
72-54-8	4,4'-DDD	186 U
1-31-07-8	Endosulfan Sulfate.....	186 U
50-29-3	4,4'-DDT	186 U
72-43-5	Methoxychlor	930 U
53494-70-5	Endrin Ketone	186 U
57-74-9	Chlordane	930 U
8001-35-2	Toxaphene	1860 U
12674-11-2	Aroclor-1016	930 U
11104-28-2	Aroclor-1221	930 U
11141-16-5	Aroclor-1232	930 U
53469-21-9	Aroclor-1242	930 U
12672-29-6	Aroclor-1248	930 U
11097-69-1	Aroclor-1254	1860 U
11096-82-5	Aroclor-1260	1860 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = or Ws = 1.5 Vt = 5000 Vi = 3.0

Form I

7410013593



ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>TOXICON INC</u> <u>BATON ROUGE, LA</u> Attn: <u>LEE KROB</u> Transfer Ship To:																			
Sample Site Name/Code: ⑤ Regional Office: <u>FE25A</u> Sampling Personnel: <u>D. J. Jester</u> (Name) <u>703-550-3000</u> (Phone) Sampling Date: <u>6/11/87</u> (Begin) <u>6/11/87</u> (End)		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td><u>1</u></td><td><u>80z.</u></td></tr><tr><td>Soil/Sediment (VOA)</td><td><u>2</u></td><td><u>80z.</u></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	<u>1</u>	<u>80z.</u>	Soil/Sediment (VOA)	<u>2</u>	<u>80z.</u>	Other		
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	<u>1</u>	<u>80z.</u>																					
Soil/Sediment (VOA)	<u>2</u>	<u>80z.</u>																					
Other																							
Shipping Information <input checked="" type="checkbox"/> FED EX Name of Carrier: <u>6/12/87</u> Date Shipped: <u>2832004442</u> Airbill Number:		⑦ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. samples were approx. 80° F</u> <u>custody seal intact</u> <u>paperwork agrees.</u>																					
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO		7410013538																					

SAMPLE NUMBER
AH655

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICOM

CASE NO: 7410

LAB SAMPLE ID NO: 4182-16

GC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Walter L. Kish*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/DIL FACTOR: 1. PH 6.90
PERCENT MOISTURE: (NOT DECANTED) 11.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	11 U	78-87-5	1,2-DICHLOROPROPANE	6 U
74-83-9	BROMOMETHANE	11 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	6 U
75-01-4	VINYL CHLORIDE	11 U	79-01-6	TRICHLOROETHENE	6 U
75-00-3	CHLOROETHANE	11 U	124-48-1	DIBROMOCHLOROMETHANE	6 U
75-09-2	METHYLENE CHLORIDE	100 B	79-00-5	1,1,2-TRICHLOROETHANE	6 U
67-64-1	ACETONE	3 J	71-43-2	BENZENE	6 U
75-15-0	CARBON DISULFIDE	6 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	6 U
75-35-4	1,1-DICHLOROETHENE	6 U	110-75-8	2-CHLOROETHYL VINYLETHYR	11 U
75-35-3	1,1-DICHLOROETHANE	6 U	75-25-2	BROMOFORM	6 U
156-60-5	TRANS-1,2-DICHLOROETHENE	6 U	108-10-1	4-METHYL-2-PENTANONE	11 U
67-66-3	CHLOROFORM	6 U	591-78-6	2-HEXANONE	11 U
107-06-2	1,2-DICHLOROETHANE	6 U	127-18-4	TETRACHLOROETHENE	6 U
78-93-3	2-BUTANONE	11 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	11 U
71-55-6	1,1,1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	6 U
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	11 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	6 U

B - COMPOUND WAS DETECTED IN THE GC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM 1

7410013539

B
LABORATORY NAME: ETC/TOXICOM
CASE NO: 7410

SAMPLE NUMBER
AH655

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 6/15/87
DATE ANALYZED: 07/15/87
DIL FACTOR: 2.00
PERCENT MOISTURE: (DECANTED) 11.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/KG		CAS NUMBER		UG/KG	
108-95-2	PHENOL	740	U	83-32-9	ACENAPHTHENE	740	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	740	U	51-28-5	2,4-DINITROPHENOL	3600	U
95-57-8	2-CHLOROPHENOL	740	U	100-02-7	4-NITROPHENOL	3600	U
541-73-1	1,3-DICHLOROBENZENE	740	U	132-64-9	DIBENZOFURAN	740	U
106-46-7	1,4-DICHLOROBENZENE	740	U	121-14-2	2,4-DINITROTOLUENE	740	U
100-51-6	BENZYL ALCOHOL	740	U	606-20-2	2,6-DINITROTOLUENE	740	U
95-50-1	1,2-DICHLOROBENZENE	740	U	84-66-2	DIETHYLPHTHALATE	740	U
95-48-7	2-METHYLPHENOL	740	U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	740	U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	740	U	86-73-7	FLUORENE	87	J
106-44-5	4-METHYLPHENOL	740	U	100-10-6	4-NITROANILINE	3600	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	740	U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	3600	U
67-72-1	HEXACHLOROETHANE	740	U	86-30-6	N-NITROSODIPHENYLAMINE (1)	740	U
98-95-3	NITROBENZENE	740	U	101-55-3	4-BROMOPHENYL-PHENYLETHER	740	U
78-59-1	ISOPHORONE	740	U	118-74-1	HEXACHLOROENZENE	740	U
88-75-5	2-NITROPHENOL	740	U	87-86-5	PENTACHLOROPHENOL	3600	U
105-67-9	2,4-DIMETHYLPHENOL	740	U	85-01-8	PHENANTHRENE	1100	
65-85-0	BENZOIC ACID	3600	U	120-12-7	ANTHRACENE	300	J
111-91-1	BIS(2-CHLOROETHOXY)METHANE	740	U	84-74-2	DI-N-BUTYLPHTHALATE	740	U
120-83-2	2,4-DICHLOROPHENOL	740	U	206-44-0	FLUORANTHENE	1500	
120-82-1	1,2,4-TRICHLOROBENZENE	740	U	129-00-0	PYRENE	1300	
91-20-3	NAPHTHALENE	740	U	85-68-7	BUTYLBENZYLPHTHALATE	740	U
106-47-8	4-CHLOROANILINE	740	U	91-94-1	3,3'-DICHLOROBENZIDINE	1500	U
67-68-3	HEXACHLOROBUTADIENE	740	U	56-55-3	BENZO(A)ANTHRACENE	740	U
59-50-7	4-CHLORO-3-METHYLPHENOL	740	U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	740	U
91-57-6	2-METHYLNAPHTHALENE	740	U	218-01-9	CHRYSENE	680	J
77-47-4	HEXACHLOROCYCLOPENTADIENE	740	U	117-84-0	DI-N-OCTYL PHTHALATE	740	U
88-06-2	2,4,6-TRICHLOROPHENOL	740	U	205-99-2	BENZO(B)FLUORANTHENE	750	
95-95-4	2,4,5-TRICHLOROPHENOL	3600	U	207-08-9	BENZO(K)FLUORANTHENE	740.4	U
91-58-7	2-CHLORONAPHTHALENE	740	U	50-32-8	BENZO(A)PYRENE	510	J
88-74-4	2-NITROANILINE	3600	U	193-39-5	INDENO(1,2,3-CD)PYRENE	740	U
131-11-3	DIMETHYL PHTHALATE	1400		53-70-3	DIBENZ(A,H)ANTHRACENE	740	U
208-96-8	ACENAPHTHYLENE	740	U	191-24-2	BENZO(G,H,I)PERYLENE	300	J
99-09-2	3-NITROANILINE	3600	U				

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013540

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH555

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

BPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS
Number

ug/L or [ug/Kg]

319-84-6	Alpha-BHC.....	45 U
319-85-7	Beta-BHC	45 U
319-86-8	Delta-BHC.....	45 U
58-89-9	Gamma-BHC (Lindane)	45 U
76-44-8	Heptachlor	45 U
309-00-2	Aldrin	45 U
1024-57-3	Heptachlor Epoxide.....	45 U
959-98-8	Endosulfan I	45 U
60-57-1	Dieldrin	90 U
72-55-9	4,4'-DDE	90 U
72-20-8	Endrin	90 U
33213-65-9	Endosulfan II	90 U
72-54-8	4,4'-DDD	90 U
1-31-07-8	Endosulfan Sulfate.....	90 U
50-29-3	4,4'-DDT	90 U
72-43-5	Methoxychlor	449 U
53494-70-5	Endrin Ketone	90 U
57-74-9	Chlordane	449 U
8001-35-2	Toxaphene	899 U
12674-11-2	Aroclor-1016	449 U
11104-28-2	Aroclor-1221	449 U
11141-16-5	Aroclor-1232	449 U
53469-21-9	Aroclor-1242	449 U
12672-29-6	Aroclor-1248	449 U
11097-69-1	Aroclor-1254	449 U
11096-82-5	Aroclor-1260	899 U

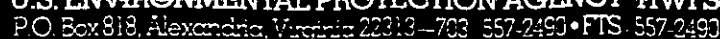
W/S ~~899 U~~ 31,000

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = or Ws = 1.5 Vt = 5000 Vi = 3.0

Form 1

7410013541



Sample Number

AH 654

ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>	② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration	④ Ship To: <u>TOXICOW INC.</u> <u>BAYON ROUGE, LA</u> Attn: <u>LEE KING</u>															
Sample Site Name/Code: 	③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment	Transfer Ship To:															
⑤ Regional Office: <u>ERSA</u> Sampling Personnel: <u>D. J. Jones</u> (Name) <u>703-550-3000</u> (Phone) Sampling Date: <u>6/11/87</u> (Begin) (End)	⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Water (Extractable)</th> <th style="width: 30%;">Number of Containers</th> <th style="width: 30%;">Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (VOA)</td> <td></td> <td></td> </tr> <tr> <td>Soil/Sediment (Extractable)</td> <td style="text-align: center;">1</td> <td style="text-align: center;">8 oz.</td> </tr> <tr> <td>Soil/Sediment (VOA)</td> <td style="text-align: center;">2</td> <td style="text-align: center;">8 oz.</td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> </tbody> </table>		Water (Extractable)	Number of Containers	Approximate Total Volume	Water (VOA)			Soil/Sediment (Extractable)	1	8 oz.	Soil/Sediment (VOA)	2	8 oz.	Other		
Water (Extractable)	Number of Containers	Approximate Total Volume															
Water (VOA)																	
Soil/Sediment (Extractable)	1	8 oz.															
Soil/Sediment (VOA)	2	8 oz.															
Other																	
⑦ Shipping Information <u>FED EX</u> (Name of Carrier) <u>6/12/87</u> Date Shipped: <u>2832004442</u> Airbill Number:	⑧ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>No ice. Samples were approx. 80°F</u> <u>Custody Seal intact.</u> <u>Signature agrees.</u>																
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____	⑨ Sample Location 																
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature)																	

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-15

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 69017148

DATA RELEASE AUTHORIZED BY: *Wm L. Kelly*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/DIL FACTOR: 1. PH 6.70
PERCENT MOISTURE: (NOT DECANTED) 12.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	11 U	78-87-5	1,2-DICHLOROPROPANE	6 U
74-83-9	BROMOMETHANE	11 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	6 U
75-01-4	VINYL CHLORIDE	11 U	79-01-6	TRICHLOROETHENE	6 U
75-00-3	CHLOROETHANE	11 U	124-48-1	DIBROMOCHLOROMETHANE	6 U
75-09-2	METHYLENE CHLORIDE	51 B	79-00-5	1,1,2-TRICHLOROETHANE	6 U
67-64-1	ACETONE	5 J	71-43-2	BENZENE	6 U
75-15-0	CARBON DISULFIDE	6 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	6 U
75-35-4	1,1-DICHLOROETHENE	6 U	110-75-8	2-CHLOROETHYL VINYLETHER	11 U
75-35-3	1,1-DICHLOROETHANE	6 U	75-25-2	BROMOFORM	6 U
156-60-5	TRANS-1,2-DICHLOROETHENE	6 U	108-10-1	4-METHYL-2-PENTANONE	11 U
67-66-3	CHLOROFORM	6 U	591-78-6	2-HEXANONE	11 U
107-06-2	1,2-DICHLOROETHANE	6 U	127-18-4	TETRACHLOROETHENE	6 U
78-93-3	2-BUTANONE	11 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	11 U
71-55-6	1,1,1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	6 U
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	11 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	6 U

B - COMPOUND WAS DETECTED IN THE QC BLANK.

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM 1

7410013479

E
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH654

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 6/15/87
DATE ANALYZED: 07/15/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED) 12.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/KG		CAS NUMBER		UG/KG
108-95-2	PHENOL	370 U		83-32-9	ACENAPHTHENE	370 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	370 U		51-28-5	2,4-DINITROPHENOL	1800 U
95-57-8	2-CHLOROPHENOL	370 U		100-02-7	4-NITROPHENOL	1800 U
541-73-1	1,3-DICHLOROBENZENE	370 U		132-64-9	DIBENZOFURAN	370 U
106-46-7	1,4-DICHLOROBENZENE	370 U		121-14-2	2,4-DINITROTOLUENE	370 U
100-51-6	BENZYL ALCOHOL	370 U		606-20-2	2,6-DINITROTOLUENE	370 U
95-50-1	1,2-DICHLOROBENZENE	370 U		84-66-2	DIETHYLPHTHALATE	370 U
95-48-7	2-METHYLPHENOL	370 U		7005-72-3	4-CHLOROPHENYL-PHENYLETHER	370 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	370 U		84-73-7	FLUORENE	370 U
106-44-5	4-METHYLPHENOL	370 U		100-10-6	4-NITROANILINE	1800 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	370 U		534-52-1	4,6-DINITRO-2-METHYLPHENOL	1800 U
57-72-1	HEXACHLOROETHANE	370 U		86-30-6	N-NITROSODIPHENYLAMINE (1)	370 U
98-95-3	NITROBENZENE	370 U		101-55-3	4-BROMOPHENYL-PHENYLETHER	370 U
78-59-1	ISOPHORONE	370 U		118-74-1	HEXACHLOROBENZENE	370 U
88-75-5	2-NITROPHENOL	370 U		87-86-5	PENTACHLOROPHENOL	1800 U
105-67-9	2,4-DIMETHYLPHENOL	370 U		85-01-8	PHENANTHRENE	170 J
65-85-0	BENZOIC ACID	1800 U		120-12-7	ANTHRACENE	370 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	370 U		84-74-2	DI-N-BUTYLPHTHALATE	370 U
120-83-2	2,4-DICHLOROPHENOL	370 U		206-44-0	FLUORANTHENE	310 J
120-82-1	1,2,4-TRICHLOROBENZENE	370 U		129-00-0	PYRENE	290 J
91-20-3	NAPHTHALENE	370 U		85-68-7	BUTYLBENZYLPHTHALATE	370 U
106-47-8	4-CHLOROANILINE	370 U		91-94-1	3,3'-DICHLOROBENZIDINE	750 U
87-68-3	HEXACHLOROBUTADIENE	370 U		56-55-3	BENZO(A)ANTHRACENE	370 U
59-50-7	4-CHLORO-3-METHYLPHENOL	370 U		117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	140 J
91-57-6	2-METHYLNAPHTHALENE	370 U		218-01-9	CHRYSENE	200 J
77-47-4	HEXACHLOROCYCLOPENTADIENE	370 U		117-84-0	DI-N-OCTYL PHTHALATE	370 U
88-06-2	2,4,6-TRICHLOROPHENOL	370 U		205-99-2	BENZO(B)FLUORANTHENE	230 J
95-95-4	2,4,5-TRICHLOROPHENOL	1800 U		207-08-9	BENZO(K)FLUORANTHENE	370 U
91-58-7	2-CHLORONAPHTHALENE	370 U		50-32-8	BENZO(A)PYRENE	140 J
88-74-4	2-NITROANILINE	1800 U		193-39-5	INDENO(1,2,3-CD)PYRENE	370 U
131-11-3	DIMETHYL PHTHALATE	370 U		53-70-3	DIBENZ(A,H)ANTHRACENE	370 U
208-96-8	ACENAPHTHYLENE	370 U		191-24-2	BENZO(G,H,I)PERYLENE	370 U
99-09-2	3-NITROANILINE	1800 U				

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013480

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH654

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS
Number

ug/L or [ug/Kg]

319-84-6	Alpha-BHC.....	45 U
319-85-7	Beta-BHC	45 U
319-86-8	Delta-BHC.....	45 U
58-89-9	Gamma-BHC (Lindane)	45 U
76-44-8	Heptachlor	45 U
309-00-2	Aldrin	45 U
1024-57-3	Heptachlor Epoxide.....	45 U
959-98-8	Endosulfan I	45 U
60-57-1	Dieldrin	91 U
72-55-9	4,4'-DDE	91 U
72-20-8	Endrin	91 U
33213-65-9	Endosulfan II	91 U
72-54-8	4,4'-DDD	91 U
1-31-07-8	Endosulfan Sulfate.....	91 U
50-29-3	4,4'-DBT	91 U
72-43-5	Methoxychlor	455 U
53494-70-5	Endrin Ketone	91 U
57-74-9	Chlordane	455 U
8001-35-2	Toxaphene	909 U
12674-11-2	Aroclor-1016	455 U
11104-28-2	Aroclor-1221	455 U
11141-16-5	Aroclor-1232	455 U
53469-21-9	Aroclor-1242	455 U
12672-29-6	Aroclor-1248	455 U
11097-69-1	Aroclor-1254	455 U
11096-82-5	Aroclor-1260	909 U

MIS ~~409 U~~ 4900

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs =

or Ws = 1.5

Vt = 5000

Vi = 3.0

Form 1

7410013481



ORGANICS' TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>TOXCON INC</u> <u>BOSTON ROUSE, LA</u> Attn: <u>LEE KING</u> Transfer _____ Ship To: _____																			
Sample Site Name/Code: <u>cowbirds; the abbottbirds; and</u> <u>the abbottbirds; the abbottbirds</u> <u>housing; the abbottbirds; the</u>		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: <u>VERM</u> Sampling Personnel: <u>D. J. Jones</u> <u>703-550-3000</u> (Name) (Phone) Sampling Date: <u>6/11</u> (Begin) <u>6/11</u> (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td><u>1</u></td><td><u>8 oz.</u></td></tr><tr><td>Soil/Sediment (VOA)</td><td><u>2</u></td><td><u>8 oz.</u></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	<u>1</u>	<u>8 oz.</u>	Soil/Sediment (VOA)	<u>2</u>	<u>8 oz.</u>	Other			⑪ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. samples were approx. 80° F. nobody seal intact paperwork agrees.</u>	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	<u>1</u>	<u>8 oz.</u>																					
Soil/Sediment (VOA)	<u>2</u>	<u>8 oz.</u>																					
Other																							
⑦ Shipping Information <u>Fed Ex</u> Name of Carrier: <u>6/12/87</u> Date Shipped: <u>283204442</u> Airbill Number:																							
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature)																							

7410013426

LAB COPY FOR RETURN TO SMO

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON
LAB SAMPLE ID NO: 4182-14
SAMPLE MATRIX: SOIL
DATA RELEASE AUTHORIZED BY: *Wann Lu Kuhl*CASE NO: 7410
QC REPORT NO: 7410
CONTRACT NO: 68017148
DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/OIL FACTOR: 1. PH 6.20
PERCENT MOISTURE: (NOT DECANTEO) 7.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	11 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	11 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	11 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	11 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	4 BJ	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	11 U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHYR	11 U
75-35-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	11 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	11 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	11 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	11 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	11 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

B - COMPOUND WAS DETECTED IN THE QC BLANK.
J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.
U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013427

B
 LABORATORY NAME: ETC/TOXICON
 CASE NO: 7410
 SAMPLE NUMBER
 AH653

ORGANICS ANALYSIS DATA SHEET
 (PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
 DATE EXTRACTED/PREPARED: 6/15/87
 DATE ANALYZED: 07/15/87
 OIL FACTOR: 10.0
 PERCENT MOISTURE: (DECANTED) 7.0
 GPC CLEANUP YES X NO
 SEPARATORY FUNNEL EXTRACTION YES
 CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER	NAME	UG/KG	CAS NUMBER	NAME	UG/KG
108-95-2	PHENOL	3500 U	83-32-9	ACENAPHTHENE	3500 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	3500 U	51-28-5	2,4-DINITROPHENOL	17000 U
95-57-8	2-CHLOROPHENOL	3500 U	100-02-7	4-NITROPHENOL	17000 U
541-73-1	1,3-DICHLOROBENZENE	3500 U	132-64-9	DIBENZOFURAN	3500 U
106-46-7	1,4-DICHLOROBENZENE	3500 U	121-14-2	2,4-DINITROTOLUENE	3500 U
100-51-6	BENZYL ALCOHOL	3500 U	606-20-2	2,6-DINITROTOLUENE	3500 U
95-50-1	1,2-DICHLOROBENZENE	3500 U	84-66-2	DIETHYLPHTHALATE	3500 U
95-48-7	2-METHYLPHENOL	3500 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	3500 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	3500 U	86-73-7	FLUORENE	3500 U
106-44-5	4-METHYLPHENOL	3500 U	100-10-6	4-NITROANILINE	17000 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	3500 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	17000 U
67-72-1	HEXACHLOROETHANE	3500 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	3500 U
98-95-3	NITROBENZENE	3500 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	3500 U
78-59-1	ISOPHORONE	3500 U	118-74-1	HEXACHLOROBENZENE	3500 U
98-75-5	2-NITROPHENOL	3500 U	87-06-5	PENTACHLOROPHENOL	17000 U
105-67-9	2,4-DIMETHYLPHENOL	3500 U	85-01-8	PHENANTHRENE	4200
65-85-0	BENZOIC ACID	17000 U	120-12-7	ANTHRACENE	1200 J
111-91-1	BIS(2-CHLOROETHOXY)METHANE	3500 U	84-74-2	DI-N-BUTYLPHTHALATE	3500 U
120-83-2	2,4-DICHLOROPHENOL	3500 U	206-44-0	FLUORANTHENE	6100
120-82-1	1,2,4-TRICHLOROBENZENE	3500 U	129-00-0	PYRENE	5200
91-20-3	NAPHTHALENE	3500 U	85-68-7	BUTYLBENZYLPHTHALATE	22000
106-47-8	4-CHLOROANILINE	3500 U	91-94-1	3,3'-DICHLOROBENZIDINE	7100 U
87-68-3	HEXACHLOROBUTADIENE	3500 U	56-55-3	BENZO(A)ANTHRACENE	3100 3500 J
59-50-7	4-CHLORO-3-METHYLPHENOL	3500 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	2500 J
91-57-6	2-METHYLNAPHTHALENE	3500 U	218-01-9	CHRYSENE	3700 3500 J
77-47-4	HEXACHLOROCYCLOPENTADIENE	3500 U	117-84-0	DI-N-OCTYL PHTHALATE	3500 U
88-06-2	2,4,6-TRICHLOROPHENOL	3500 U	205-99-2	BENZO(B)FLUORANTHENE	3400 J
95-95-4	2,4,5-TRICHLOROPHENOL	17000 U	207-08-9	BENZO(K)FLUORANTHENE	3500 3100 J
91-58-7	2-CHLORONAPHTHALENE	3500 U	50-32-8	BENZO(A)PYRENE	2100 J
88-74-4	2-NITROANILINE	17000 U	193-39-5	INDENO(1,2,3-CD)PYRENE	3500 U
131-11-3	DIMETHYL PHTHALATE	3500 U	53-70-3	DIBENZ(A,H)ANTHRACENE	3500 U
208-96-8	ACENAPHTHYLENE	3500 U	191-24-2	BENZO(G,H,I)PERYLENE	1200 J
99-09-2	3-NITROANILINE	17000 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013428

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH653

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	43 U
319-85-7	Beta-BHC	43 U
319-86-8	Delta-BHC.....	43 U
58-89-9	Gamma-BHC (Lindane)	43 U
76-44-8	Heptachlor	43 U
309-00-2	Aldrin	43 U
1024-57-3	Heptachlor Epoxide.....	43 U
959-98-8	Endosulfan I	43 U
60-57-1	Dieldrin	86 U
72-55-9	4,4'-DDE	86 U
72-20-8	Endrin	86 U
33213-65-9	Endosulfan II	86 U
72-54-8	4,4'-DDD	86 U
1-31-07-8	Endosulfan Sulfate.....	86 U
50-29-3	4,4'-DDT	86 U
72-43-5	Methoxychlor	430 U
53494-70-5	Endrin Ketone	86 U
57-74-9	Chlordane	430 U
8001-35-2	Toxaphene	860 U
12674-11-2	Aroclor-1016	430 U
11104-28-2	Aroclor-1221	430 U
11141-16-5	Aroclor-1232	430 U
53469-21-9	Aroclor-1242	430 U
12672-29-6	Aroclor-1248	430 U
11097-69-1	Aroclor-1254	860 U
11096-82-5	Aroclor-1260	860 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs =

or Ws = 1.5

Vt =

5000

Vi = 3.0

Form I

7410013429



ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>TOXICON INC</u> <u>BATON ROUGE, LA</u> Attn: <u>LEE KOB</u> Transfer Ship To:																			
Sample Site Name/Code: <u>CHRONICLE</u> <u>completing the appropriate section</u> <u>of the CHRONICLE</u> <u>Organics Traffic Report</u>		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: <u>VERMONT</u> Sampling Personnel: <u>D. J. J. J.</u> (Name) <u>750-3300</u> (Phone) Sampling Date: <u>6/11</u> (Begin) <u>6/11</u> (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td><u>4</u></td><td><u>4 liters</u></td></tr><tr><td>Water (VOA)</td><td><u>2</u></td><td><u>80 ml</u></td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	<u>4</u>	<u>4 liters</u>	Water (VOA)	<u>2</u>	<u>80 ml</u>	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other			⑪ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. samples were approx 80°F</u> <u>custody seal intact</u> <u>paperwork agrees</u>	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	<u>4</u>	<u>4 liters</u>																					
Water (VOA)	<u>2</u>	<u>80 ml</u>																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information <u>Fed Ex</u> Name of Carrier: <u>6/12/87</u> Date Shipped: <u>2832504442</u> Airbill Number:																							
⑧ Sample Description <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input type="checkbox"/> Mixed Media <input type="checkbox"/> Solids <input type="checkbox"/> Other (specify)		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) <u>NO HAZARDOUS MATERIALS</u> <u>NO TOXIC MATERIALS</u> <u>NO FLAMMABLE MATERIALS</u> <u>NO CORROSIVE MATERIALS</u> <u>NO RADIOACTIVE MATERIALS</u> <u>NO OTHER HAZARDOUS MATERIALS</u> LAB COPY FOR RETURN TO SMO																							

7410013378

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-13

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Warren L. Kelly*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/15/87

CONC/OIL FACTOR: 1.

PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	5 U	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	10 U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHER	10 U
75-35-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	2 J
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	10 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	2 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	27
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	94

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013379

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH652

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/24/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-44-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 U
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-6	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZOINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013380

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah652

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCEs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000

or Ws =

Vt = 10000

Vi = 3.0

Form I

7410013381



ORGANICS TRAFFIC REPORT

① Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: VOXICON INC BATON ROUGE, LA Attn: LEE KOO Transfer Ship To:																			
Sample Site Name/Code: _____		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: VELSAL Sampling Personnel: D. Justen (Name) 750 3300 (Phone) Sampling Date: 6/11 (Begin) 6/11 (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td>4</td><td>4 liters</td></tr><tr><td>Water (VOA)</td><td>2</td><td>80 ml</td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	4	4 liters	Water (VOA)	2	80 ml	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other			⑪ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) no ice. samples were approx 80°F custody seal intact paperwork agrees	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	4	4 liters																					
Water (VOA)	2	80 ml																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information Fed Ex Name of Carrier: Fed Ex Date Shipped: 6/12/87 Airbill Number: 2832504442																							
⑧ Sample Description <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input type="checkbox"/> Mixed Media <input type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____		⑨ Sample Location _____																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO																							

7410013409

Organics Analysis Data Sheet
(Page 1)Laboratory Name: ETC/ToxiconCase No: 7410

Lab Sample ID No: _____

QC Report No: 7410

Sample Matrix: _____

Contract No: 68-01-7148Data Release Authorized By: Walter L. KottDate Sample Received: 6/15/87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: NO FRACTION ANALYZED

Conc/Dil Factor: _____ pH _____

Percent Moisture: (Not Decanted) _____

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	
74-83-9	Bromomethane	
75-01-4	Vinyl Chloride	
75-00-3	Chloroethane	
75-09-2	Methylene Chloride	
67-64-1	Acetone	
75-15-0	Carbon Disulfide	
75-35-4	1, 1-Dichloroethene	
75-34-3	1, 1-Dichloroethane	
156-60-5	Trans-1, 2-Dichloroethane	
67-66-3	Chloroform	
107-06-2	1, 2-Dichloroethane	
78-93-3	2-Butanone	
71-55-6	1, 1, 1-Trichloroethane	
56-23-5	Carbon Tetrachloride	
108-05-4	Vinyl Acetate	
75-27-4	Bromodichloromethane	

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	
10061-02-6	Trans-1, 3-Dichloropropene	
79-01-6	Trichloroethene	
124-48-1	Dibromochloromethane	
79-00-5	1, 1, 2-Trichloroethane	
71-43-2	Benzene	
10061-01-5	cis-1, 3-Dichloropropene	
110-75-8	2-Chloroethylvinylether	
75-25-2	Bromoform	
108-10-1	4-Methyl-2-Pentanone	
591-78-6	2-Hexanone	
127-18-4	Tetrachloroethene	
79-34-5	1, 1, 2, 2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used.
Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

7410013410

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH652RE

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 07/16/87
DATE ANALYZED: 07/16/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER	UG/L	CAS NUMBER	UG/L
108-95-2 PHENOL	10 U	83-32-9 ACENAPHTHENE	10 U
111-44-4 BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5 2,4-DINITROPHENOL	50 U
95-57-8 2-CHLOROPHENOL	10 U	100-02-7 4-NITROPHENOL	50 U
541-73-1 1,3-DICHLOROBENZENE	10 U	132-64-9 DIBENZOFURAN	10 U
106-46-7 1,4-DICHLOROBENZENE	10 U	121-14-2 2,4-DINITROTOLUENE	10 U
100-51-6 BENZYL ALCOHOL	10 U	606-20-2 2,6-DINITROTOLUENE	10 U
95-50-1 1,2-DICHLOROBENZENE	7 J	84-66-2 DIETHYLPHTHALATE	10 U
95-48-7 2-METHYLPHENOL	10 U	7005-72-3 4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9 BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7 FLUORENE	10 U
106-44-5 4-METHYLPHENOL	10 U	100-10-6 4-NITROANILINE	50 U
621-64-7 N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1 4,6-DINITRO-2-METHYLPHENOL	50 U
67-72-1 HEXACHLOROETHANE	10 U	86-30-6 N-NITROSODIPHENYLAMINE (1)	10 U
98-95-3 NITROBENZENE	10 U	101-55-3 4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1 ISOPHORONE	10 U	118-74-1 HEXACHLOROCHLOROBENZENE	10 U
88-75-5 2-NITROPHENOL	10 U	87-86-5 PENTACHLOROPHENOL	50 U
105-67-9 2,4-DIMETHYLPHENOL	10 U	85-01-8 PHENANTHRENE	10 U
65-85-0 BENZOIC ACID	50 U	120-12-7 ANTHRACENE	10 U
111-91-1 BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2 DI-N-BUTYLPHTHALATE	10 U
120-83-2 2,4-DICHLOROPHENOL	10 U	206-44-0 FLUORANTHENE	10 U
120-82-1 1,2,4-TRICHLOROBENZENE	10 U	129-00-0 PYRENE	10 U
91-20-3 NAPHTHALENE	10 U	85-68-7 BUTYLBENZYLPHTHALATE	10 U
106-47-8 4-CHLOROANILINE	10 U	91-94-1 3,3'-DICHLOROBENZIDINE	20 U
87-68-3 HEXACHLOROBUTADIENE	10 U	56-55-3 BENZO(A)ANTHRACENE	10 U
59-50-7 4-CHLORO-3-METHYLPHENOL	10 U	117-81-7 BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6 2-METHYLNAPHTHALENE	10 U	218-01-9 CHRYSENE	10 U
77-47-4 HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0 DI-N-OCTYL PHTHALATE	10 U
88-06-2 2,4,6-TRICHLOROPHENOL	10 U	205-99-2 BENZO(B)FLUORANTHENE	10 U
95-95-4 2,4,5-TRICHLOROPHENOL	50 U	207-08-9 BENZO(K)FLUORANTHENE	10 U
91-58-7 2-CHLORONAPHTHALENE	10 U	50-32-8 BENZO(A)PYRENE	10 U
88-74-4 2-NITROANILINE	50 U	193-39-5 INDENO(1,2,3-CD)PYRENE	10 U
131-11-3 DIMETHYL PHTHALATE	10 U	53-70-3 DIBENZ(A,H)ANTHRACENE	10 U
208-96-8 ACENAPHTHYLENE	10 U	191-24-2 BENZO(G,H,I)PERYLENE	10 U
99-09-2 3-NITROANILINE	50 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013411



ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>TOXICON INC.</u> <u>BATON ROUGE, LA</u> <u>Attn: LEE KAO</u> Transfer Ship To:																			
⑤ Regional Office: <u>WASAC</u> Sampling Personnel: <u>D. Gustin</u> <u>703-550-3000</u> (Name) (Phone) Sampling Date: <u>6/11/87</u> (Begin) <u>6/11/87</u> (End)		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td><u>4</u></td><td><u>4 liters</u></td></tr><tr><td>Water (VOA)</td><td><u>2</u></td><td><u>80 ml</u></td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	<u>4</u>	<u>4 liters</u>	Water (VOA)	<u>2</u>	<u>80 ml</u>	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other		
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	<u>4</u>	<u>4 liters</u>																					
Water (VOA)	<u>2</u>	<u>80 ml</u>																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
⑦ Shipping Information <u>Fed Ex</u> Name of Carrier: <u>6/12/87</u> Date Shipped: <u>2832004492</u> Airbill Number:		⑪ Analysis Lab: <u>Rec'd by: [Signature]</u> <u>Date Rec'd: 6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. Sample was approx 60°F</u> <u>Antib Seal intact.</u> <u> paperwork agrees</u>																					
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) <u>None</u>		7410013347 LAB COPY FOR RETURN TO SMO																					

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-12

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *W. J. K. K.*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/16/87

DIL FACTOR: 5.00 PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	50 U	78-87-5	1,2-DICHLOROPROPANE	25 U
74-83-9	BROMOMETHANE	50 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	25 U
75-01-4	VINYL CHLORIDE	50 U	79-01-6	TRICHLOROETHENE	25 U
75-00-3	CHLOROETHANE	50 U	124-48-1	DIBROMOCHLOROMETHANE	25 U
75-09-2	METHYLENE CHLORIDE	8 J	79-00-5	1,1,2-TRICHLOROETHANE	25 U
67-64-1	ACETONE	240	71-43-2	BENZENE	25 U
75-15-0	CARBON DISULFIDE	25 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	25 U
75-35-4	1,1-DICHLOROETHENE	25 U	110-75-8	2-CHLOROETHYL VINYLETHYR	50 U
75-35-3	1,1-DICHLOROETHANE	25 U	75-25-2	BROMOFORM	25 U
156-60-5	TRANS-1,2-DICHLOROETHENE	25 U	108-10-1	4-METHYL-2-PENTANONE	50 U
67-66-3	CHLOROFORM	25 U	591-78-6	2-HEXANONE	50 U
107-06-2	1,2-DICHLOROETHANE	25 U	127-18-4	TETRACHLOROETHENE	25 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	50 U
71-55-6	1,1,1-TRICHLOROETHANE	25 U	108-88-3	TOLUENE	25 U
56-23-5	CARBON TETRACHLORIDE	25 U	108-90-7	CHLOROBENZENE	25 U
108-05-4	VINYL ACETATE	50 U	100-41-4	ETHYLBENZENE	25 U
75-27-4	BROMODICHLOROMETHANE	25 U	100-42-5	STYRENE	25 U
				TOTAL XYLENES	460

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013348

8
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH651

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/24/87
DIL FACTOR: 10.0
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION

YES

CAS NUMBER	UG/L	CAS NUMBER	UG/L
108-95-2	PHENOL 2400	83-32-9	ACENAPHTHENE 100 U
111-44-4	BIS(2-CHLOROETHYL)ETHER 100 U	51-28-5	2,4-DINITROPHENOL 500 U
95-57-8	2-CHLOROPHENOL 100 U	100-82-7	4-NITROPHENOL 500 U
541-73-1	1,3-DICHLOROBENZENE 100 U	132-64-9	DIBENZOFURAN 100 U
106-46-7	1,4-DICHLOROBENZENE 100 U	121-14-2	2,4-DINITROTOLUENE 100 U
100-51-6	BENZYL ALCOHOL 100 U	606-20-2	2,6-DINITROTOLUENE 100 U
95-50-1	1,2-DICHLOROBENZENE 100 U	84-66-2	DIETHYLPHTHALATE 100 U
95-48-7	2-METHYLPHENOL 100 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER 100 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER 100 U	84-73-7	FLUORENE 100 U
106-44-5	4-METHYLPHENOL 100 U	100-10-6	4-NITROANILINE 500 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE 100 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL 500 U
67-72-1	HEXACHLOROETHANE 100 U	86-30-6	N-NITROSODIPHENYLAMINE (1) 100 U
98-95-3	NITROBENZENE 100 U	101-55-3	4-BROMOPHENYL-PHENYLETHER 100 U
78-59-1	ISOPHORONE 100 U	118-74-1	HEXACHLOROENZENE 100 U
88-75-5	2-NITROPHENOL 100 U	87-86-5	PENTACHLOROPHENOL 500 U
105-67-9	2,4-DIMETHYLPHENOL 100 U	85-01-8	PHENANTHRENE 100 U
65-85-0	BENZOIC ACID 500 U	120-12-7	ANTHRACENE 100 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE 100 U	84-74-2	DI-N-BUTYLPHTHALATE 100 U
120-83-2	2,4-DICHLOROPHENOL 100 U	206-44-0	FLUORANTHENE 100 U
120-82-1	1,2,4-TRICHLOROBENZENE 100 U	129-00-0	PYRENE 100 U
91-20-3	NAPHTHALENE 100 U	85-68-7	BUTYLBENZYLPHTHALATE 100 U
106-47-8	4-CHLOROANILINE 100 U	91-94-1	3,3'-DICHLOROBENZIDINE 200 U
87-68-3	HEXACHLOROBUTADIENE 100 U	56-55-3	BENZO(A)ANTHRACENE 100 U
59-50-7	4-CHLORO-3-METHYLPHENOL 100 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE 100 U
91-57-6	2-METHYLNAPHTHALENE 100 U	218-01-9	CHRYSENE 100 U
77-47-4	HEXACHLOROCYCLOPENTADIENE 100 U	117-84-0	DI-N-OCTYL PHTHALATE 100 U
88-06-2	2,4,6-TRICHLOROPHENOL 100 U	205-99-2	BENZO(B)FLUORANTHENE 100 U
95-95-4	2,4,5-TRICHLOROPHENOL 500 U	207-08-9	BENZO(K)FLUORANTHENE 100 U
91-58-7	2-CHLORONAPHTHALENE 100 U	50-32-8	BENZO(A)PYRENE 100 U
88-74-4	2-NITROANILINE 500 U	193-39-5	INDENO(1,2,3-CD)PYRENE 100 U
131-11-3	DIMETHYL PHTHALATE 100 U	53-70-3	DIBENZ(A,H)ANTHRACENE 100 U
208-96-8	ACENAPHTHYLENE 100 U	191-24-2	BENZO(G,H,I)PERYLENE 100 U
99-09-2	3-NITROANILINE 500 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013349

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ahb51

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		(ug/L) or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

V_i = Volume of extract injected (ul)
 V_s = Volume of water extracted (ml)
 W_s = Weight of sample extracted (g)
 V_t = Volume of total extract (ul)

V_s = 1000 or W_s = V_t = 10000 V_i = 3.0

Form I

7410013350



ORGANICS TRAFFIC REPORT

① Case Number: 10741052		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOKIO S.N.C. BATON ROUGE, LA Attn: LEE KIM																			
⑤ Regional Office: SAL Sampling Personnel: D. J. [Signature] 103-150-300 Sampling Date: 6/11/87 (Begin) (End)		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment		Transfer Ship To:																			
Shipping Information Name of Carrier: Fed Ex Date Shipped: 6/12/87 Airbill Number: 283204442		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td>1</td><td>8 oz.</td></tr><tr><td>Soil/Sediment (VOA)</td><td>2</td><td>8 oz.</td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	1	8 oz.	Soil/Sediment (VOA)	2	8 oz.	Other			⑦ Analyst's Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) no ice. samples were were approx 80°F custody seal intact paperwork agrees	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	1	8 oz.																					
Soil/Sediment (VOA)	2	8 oz.																					
Other																							
⑧ Sample Description <input type="checkbox"/> Surface Water <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify)		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO																							

7410013302

SAMPLE NUMBER
AH650

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-11

QC REPORT NO: 7410

SAMPLE MATRIX: SOIL

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Werner L. Keld*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/OIL FACTOR: 1. PH 6.10
PERCENT MOISTURE: (NOT DECANTED) 32.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	15 U	78-87-5	1,2-DICHLOROPROPANE	7 U
74-83-9	BROMOMETHANE	15 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	7 U
75-01-4	VINYL CHLORIDE	15 U	79-01-6	TRICHLOROETHENE	7 U
75-00-3	CHLOROETHANE	15 U	124-48-1	DIBROMOCHLOROMETHANE	7 U
75-09-2	METHYLENE CHLORIDE	50	79-00-5	1,1,2-TRICHLOROETHANE	7 U
67-64-1	ACETONE	10 J	71-43-2	BENZENE	7 U
75-15-0	CARBON DISULFIDE	7 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	7 U
75-35-4	1,1-DICHLOROETHENE	7 U	110-75-8	2-CHLOROETHYLVINYLETHER	15 U
75-35-3	1,1-DICHLOROETHANE	7 U	75-25-2	BROMOFORM	7 U
156-60-5	TRANS-1,2-DICHLOROETHENE	7 U	108-10-1	4-METHYL-2-PENTANONE	15 U
67-66-3	CHLOROFORM	7 U	591-78-6	2-HEXANONE	15 U
107-06-2	1,2-DICHLOROETHANE	7 U	127-18-4	TETRACHLOROETHENE	7 U
78-93-3	2-BUTANONE	15 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	15 U
71-55-6	1,1,1-TRICHLOROETHANE	7 U	108-88-3	TOLUENE	7 U
56-23-5	CARBON TETRACHLORIDE	7 U	108-90-7	CHLOROBENZENE	7 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	7 U
75-27-4	BROMODICHLOROMETHANE	7 U	100-42-5	STYRENE	7 U
				TOTAL XYLENES	7 U

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.
U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013303

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH650

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 6/15/87
DATE ANALYZED: 07/15/87
CONC/OIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED) 32.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION X YES

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
108-95-2	PHENOL	490 U	83-32-9	ACENAPHTHENE	490 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	490 U	51-28-5	2,4-DINITROPHENOL	2400 U
95-57-8	2-CHLOROPHENOL	490 U	100-02-7	4-NITROPHENOL	2400 U
541-73-1	1,3-DICHLOROBENZENE	490 U	132-64-9	DIBENZOFURAN	490 U
106-46-7	1,4-DICHLOROBENZENE	490 U	121-14-2	2,4-DINITROTOLUENE	490 U
100-51-6	BENZYL ALCOHOL	490 U	606-20-2	2,6-DINITROTOLUENE	490 U
95-50-1	1,2-DICHLOROBENZENE	490 U	84-66-2	DIETHYLPHTHALATE	490 U
95-48-7	2-METHYLPHENOL	490 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	490 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	490 U	86-73-7	FLUORENE	490 U
106-44-5	4-METHYLPHENOL	490 U	100-10-6	4-NITROANILINE	2400 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	490 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	2400 U
67-72-1	HEXACHLOROETHANE	490 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	490 U
98-95-3	NITROBENZENE	490 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	490 U
78-59-1	ISOPHORONE	490 U	118-74-1	HEXACHLOROCHLOROBENZENE	490 U
88-75-5	2-NITROPHENOL	490 U	87-86-5	PENTACHLOROPHENOL	2400 U
105-67-9	2,4-DIMETHYLPHENOL	490 U	85-01-8	PHENANTHRENE	490 U
65-85-0	BENZOIC ACID	2400 U	120-12-7	ANTHRACENE	490 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	490 U	84-74-2	DI-N-BUTYLPHTHALATE	490 U
120-83-2	2,4-DICHLOROPHENOL	490 U	206-44-0	FLUORANTHENE	490 U
120-82-1	1,2,4-TRICHLOROBENZENE	490 U	129-00-0	PYRENE	490 U
91-20-3	NAPHTHALENE	490 U	85-68-7	BUTYLBENZYLPHTHALATE	490 U
106-47-8	4-CHLOROANILINE	490 U	91-94-1	3,3'-DICHLOROBENZIDINE	970 U
87-68-3	HEXACHLOROBUTADIENE	490 U	56-55-3	BENZO(A)ANTHRACENE	490 U
59-50-7	4-CHLORO-3-METHYLPHENOL	490 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	490 U
91-57-6	2-METHYLNAPHTHALENE	490 U	218-01-9	CHRYSENE	490 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	490 U	117-84-0	DI-N-OCTYL PHTHALATE	490 U
88-06-2	2,4,6-TRICHLOROPHENOL	490 U	205-99-2	BENZO(B)FLUORANTHENE	490 U
95-95-4	2,4,5-TRICHLOROPHENOL	2400 U	207-08-9	BENZO(K)FLUORANTHENE	490 U
91-58-7	2-CHLORONAPHTHALENE	490 U	50-32-8	BENZO(A)PYRENE	490 U
88-74-4	2-NITROANILINE	2400 U	193-39-5	INDENO(1,2,3-CD)PYRENE	490 U
131-11-3	DIMETHYL PHTHALATE	490 U	53-70-3	DIBENZ(A,H)ANTHRACENE	490 U
208-96-8	ACENAPHTHYLENE	490 U	191-24-2	BENZO(G,H,I)PERYLENE	490 U
99-09-2	3-NITROANILINE	2400 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013304

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH650

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 24-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	59 U
319-85-7	Beta-BHC	59 U
319-86-8	Delta-BHC.....	59 U
58-89-9	Gamma-BHC (Lindane)	59 U
76-44-8	Heptachlor	59 U
309-00-2	Aldrin	59 U
1024-57-3	Heptachlor Epoxide.....	59 U
959-98-8	Endosulfan I	59 U
60-57-1	Dieldrin	118 U
72-55-9	4,4'-DDE	118 U
72-20-8	Endrin	118 U
33213-65-9	Endosulfan II	118 U
72-54-8	4,4'-DDD	118 U
1-31-07-8	Endosulfan Sulfate.....	118 U
50-29-3	4,4'-DDT	118 U
72-43-5	Methoxychlor	588 U
53494-70-5	Endrin Ketone	118 U
57-74-9	Chlordane	588 U
8001-35-2	Toxaphene	1176 U
12674-11-2	Aroclor-1016	588 U
11104-28-2	Aroclor-1221	588 U
11141-16-5	Aroclor-1232	588 U
53469-21-9	Aroclor-1242	588 U
12672-29-6	Aroclor-1248	588 U
11097-69-1	Aroclor-1254	588 U
11096-82-5	Aroclor-1260	1176 U

MIS 1176 U 9300

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = or Ws = 1.5 Vt = 5000 Vi = 3.0

Form I

7410013305



ORGANICS TRAFFIC REPORT

① Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOXICOM INC BATON ROUGE, LA Attn: LEE KOD Transfer Ship To:	
⑤ Regional Office: NERSA Sampling Personnel: D. J. [Signature] 83-450-3000 Sampling Date: 6/11/87 (Begin) (End)		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment		⑥ For each sample collected specify number of containers used and mark volume level on each bottle.	
Shipping Information <input checked="" type="checkbox"/> Check condition of all containers Name of Carrier: Fed Ex Date Shipped: 6/12/87 Airbill Number: 283204442		Water (Extractable)		4	4 liters
		Water (VOA)		2	80 ml
		Soil/Sediment (Extractable)			
		Soil/Sediment (VOA)			
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____		⑦ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) No ice, Samples were approx. 80°F. Custody Seal intact (signature)			
⑨ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO					

7410013268

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON
LAB SAMPLE ID NO: 4182-10
SAMPLE MATRIX: WATER
DATA RELEASE AUTHORIZED BY: *Warren L. Kell*CASE NO: 7410
QC REPORT NO: 7410
CONTRACT NO: 68017148
DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/16/87
DIL FACTOR: 5.00 PH NR
PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	50 U	78-87-5	1,2-DICHLOROPROPANE	25 U
74-83-9	BROMOMETHANE	50 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	25 U
75-01-4	VINYL CHLORIDE	50 U	79-01-6	TRICHLOROETHENE	25 U
75-00-3	CHLOROETHANE	50 U	124-48-1	DIBROMOCHLOROMETHANE	25 U
75-09-2	METHYLENE CHLORIDE	7 J	79-00-5	1,1,2-TRICHLOROETHANE	25 U
67-64-1	ACETONE	190	71-43-2	BENZENE	25 U
75-15-0	CARBON DISULFIDE	25 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	25 U
75-35-4	1,1-DICHLOROETHENE	25 U	110-75-8	2-CHLOROETHYL VINYLETHER	50 U
75-35-3	1,1-DICHLOROETHANE	25 U	75-25-2	BROMOFORM	25 U
156-60-5	TRANS-1,2-DICHLOROETHENE	25 U	108-10-1	4-METHYL-2-PENTANONE	50 U
67-66-3	CHLOROFORM	25 U	591-78-6	2-HEXANONE	50 U
107-06-2	1,2-DICHLOROETHANE	25 U	127-18-4	TETRACHLOROETHENE	25 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	50 U
71-55-6	1,1,1-TRICHLOROETHANE	25 U	108-88-3	TOLUENE	22 J
56-23-5	CARBON TETRACHLORIDE	25 U	108-90-7	CHLOROBENZENE	14 J
108-05-4	VINYL ACETATE	50 U	100-41-4	ETHYLBENZENE	50 540
75-27-4	BROMODICHLOROMETHANE	25 U	100-42-5	STYRENE	25 U
				TOTAL XYLENES	780

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.
U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

DTC 6/16/87

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013269

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH649

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/17/87
OIL FACTOR: 5.00
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION

YES

CAS NUMBER	UG/L	CAS NUMBER	UG/L
108-95-2 PHENOL	2000	83-32-9 ACENAPHTHENE	50 U
111-44-4 BIS(2-CHLOROETHYL)ETHER	50 U	51-28-5 2,4-DINITROPHENOL	250 U
95-57-8 2-CHLOROPHENOL	50 U	100-02-7 4-NITROPHENOL	250 U
541-73-1 1,3-DICHLOROBENZENE	50 U	132-64-9 DIBENZOFURAN	50 U
106-46-7 1,4-DICHLOROBENZENE	50 U	121-14-2 2,4-DINITROTOLUENE	50 U
100-51-6 BENZYL ALCOHOL	50 U	606-20-2 2,6-DINITROTOLUENE	50 U
95-50-1 1,2-DICHLOROBENZENE	50 U	84-66-2 DIETHYLPHTHALATE	50 U
95-48-7 2-METHYLPHENOL	50 U	7005-72-3 4-CHLOROPHENYL-PHENYLETHER	50 U
39638-32-9 BIS(2-CHLOROISOPROPYL)ETHER	50 U	86-73-7 FLUORENE	50 U
106-44-5 4-METHYLPHENOL	50 U	100-10-6 4-NITROANILINE	250 U
621-64-7 N-NITROSO-DI-N-PROPYLAMINE	50 U	534-52-1 4,6-DINITRO-2-METHYLPHENOL	250 U
67-72-1 HEXACHLOROETHANE	50 U	86-30-6 N-NITROSDIPHENYLAMINE (1)	50 U
98-95-3 NITROBENZENE	50 U	101-55-3 4-BROMOPHENYL-PHENYLETHER	50 U
78-59-1 ISOPHORONE	50 U	118-74-1 HEXACHLOROENZENE	50 U
88-75-5 2-NITROPHENOL	50 U	87-84-5 PENTACHLOROPHENOL	250 U
105-67-9 2,4-DIMETHYLPHENOL	50 U	85-01-8 PHENANTHRENE	50 U
65-85-0 BENZOIC ACID	250 U	120-12-7 ANTHRACENE	50 U
111-91-1 BIS(2-CHLOROETHOXY)METHANE	50 U	84-74-2 DI-N-BUTYLPHTHALATE	50 U
120-83-2 2,4-DICHLOROPHENOL	50 U	206-44-0 FLUORANTHENE	50 U
120-82-1 1,2,4-TRICHLOROBENZENE	50 U	129-00-0 PYRENE	50 U
91-20-3 NAPHTHALENE	50 U	85-68-7 BUTYLBENZYLPHTHALATE	50 U
106-47-8 4-CHLOROANILINE	50 U	91-94-1 3,3'-DICHLOROBENZIDINE	100 U
87-68-3 HEXACHLOROBUTADIENE	50 U	56-55-3 BENZO(A)ANTHRACENE	50 U
59-50-7 4-CHLORO-3-METHYLPHENOL	50 U	117-81-7 BIS(2-ETHYLHEXYL)PHTHALATE	50 U
91-57-6 2-METHYLNAPHTHALENE	50 U	218-01-9 CHRYSENE	50 U
77-47-4 HEXACHLOROCYCLOPENTADIENE	50 U	117-84-0 DI-N-OCTYL PHTHALATE	50 U
88-06-2 2,4,6-TRICHLOROPHENOL	50 U	205-99-2 BENZO(B)FLUORANTHENE	50 U
95-95-4 2,4,5-TRICHLOROPHENOL	250 U	207-08-9 BENZO(K)FLUORANTHENE	50 U
91-58-7 2-CHLORONAPHTHALENE	50 U	50-32-8 BENZO(A)PYRENE	50 U
88-74-4 2-NITROANILINE	250 U	193-39-5 INDENO(1,2,3-CD)PYRENE	50 U
131-11-3 DIMETHYL PHTHALATE	50 U	53-70-3 DIBENZ(A,H)ANTHRACENE	50 U
208-96-8 ACENAPHTHYLENE	50 U	191-24-2 BENZO(G,H,I)PERYLENE	50 U
99-09-2 3-NITROANILINE	250 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013270

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah649

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous liquid-liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000 or Ws = Vt = 10000 Vi = 3.0

Form 1

7410013271

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-09

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Wm L. Kido*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/16/87

DIL FACTOR: 10.0 PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	100 U	78-87-5	1,2-DICHLOROPROPANE	50 U
74-83-9	BROMOMETHANE	100 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	50 U
75-01-4	VINYL CHLORIDE	66 J	79-01-6	TRICHLOROETHENE	50 U
75-00-3	CHLOROETHANE	100 U	124-48-1	DIBROMOCHLOROMETHANE	50 U
75-09-2	METHYLENE CHLORIDE	50 U	79-00-5	1,1,2-TRICHLOROETHANE	50 U
67-64-1	ACETONE	100 U	71-43-2	BENZENE	50 U
75-15-0	CARBON DISULFIDE	50 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	50 U
75-35-4	1,1-DICHLOROETHENE	50 U	110-75-8	2-CHLOROETHYLVINYLETHER	100 U
75-35-3	1,1-DICHLOROETHANE	50 U	75-25-2	BROMOFORM	50 U
156-60-5	TRANS-1,2-DICHLOROETHENE	210	108-10-1	4-METHYL-2-PENTANONE	100 U
67-66-3	CHLOROFORM	50 U	591-78-6	2-HEXANONE	100 U
107-06-2	1,2-DICHLOROETHANE	50 U	127-18-4	TETRACHLOROETHENE	50 U
78-93-3	2-BUTANONE	100 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	100 U
71-55-6	1,1,1-TRICHLOROETHANE	50 U	108-88-3	TOLUENE	27 J
56-23-5	CARBON TETRACHLORIDE	50 U	108-90-7	CHLOROBENZENE	1100
108-05-4	VINYL ACETATE	100 U	100-41-4	ETHYLBENZENE	50 U
75-27-4	BROMODICHLOROMETHANE	50 U	100-42-5	STYRENE	50 U
				TOTAL XYLENES	46 J

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013217

B
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH648

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/11/87
CONC/OIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION X YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	29	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-46-7	1,4-DICHLOROBENZENE	24	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	230	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U <i>UWk</i>
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 <i>U</i>
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	15
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013218

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah648

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000

or Ws =

Vt = 10000

Vi = 3.0

Form I

7410013218a

AH 647

ORGANICS TRAFFIC REPORT

① Case Number: 57410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOXICON INC BATON ROUGE, LA Attn: LEE KIDD Transfer Ship To:																			
③ Sample Site Name/Code: [Illegible]		③ Sample Matrix (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: [Illegible]		⑥ For each sample collected specify number of containers used and mark volume level on each bottle.		⑦ Analysis Lab: Rec'd by: [Illegible] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) no ice. Samples were approx 80°F Custody seal intact paperwork agrees.																			
Sampling Personnel: D. [Illegible] (Name) [Illegible] (Phone) Sampling Date: 6/11/87 (Begin) 6/11/87 (End)		<table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td>4</td><td>4 liters</td></tr><tr><td>Water (VOA)</td><td>2</td><td>20 ml</td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	4	4 liters	Water (VOA)	2	20 ml	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other				
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	4	4 liters																					
Water (VOA)	2	20 ml																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information Check condition of all samples: <input checked="" type="checkbox"/> FED EX Name of Carrier: 6/12/87 Date Shipped: 2832004442 Airbill Number:																							
⑧ Sample Description: <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify)		⑨ Sample Location:																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) [Illegible]																							

LAB COPY FOR RETURN TO SMO

7410013163

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-08

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Walter L. Kild*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/16/87

DIL FACTOR: 10.0 PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	100 U	78-87-5	1,2-DICHLOROPROPANE	50 U
74-83-9	BROMOMETHANE	100 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	50 U
75-01-4	VINYL CHLORIDE	100 U	79-01-6	TRICHLOROETHENE	50 U
75-00-3	CHLOROETHANE	100 U	124-48-1	DIBROMOCHLOROMETHANE	50 U
75-09-2	METHYLENE CHLORIDE	11 J	79-00-5	1,1,2-TRICHLOROETHANE	50 U
67-64-1	ACETONE	100 U	71-43-2	BENZENE	24 J
75-15-0	CARBON DISULFIDE	50 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	50 U
75-35-4	1,1-DICHLOROETHENE	50 U	110-75-8	2-CHLOROETHYL VINYLETHYL	100 U
75-35-3	1,1-DICHLOROETHANE	50 U	75-25-2	BROMOFORM	50 U
156-60-5	TRANS-1,2-DICHLOROETHENE	50 U	108-10-1	4-METHYL-2-PENTANONE	100 U
67-66-3	CHLOROFORM	50 U	591-78-6	2-HEXANONE	100 U
107-06-2	1,2-DICHLOROETHANE	50 U	127-18-4	TETRACHLOROETHENE	50 U
78-93-3	2-BUTANONE	100 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	100 U
71-55-6	1,1,1-TRICHLOROETHANE	50 U	108-88-3	TOLUENE	50 U
56-23-5	CARBON TETRACHLORIDE	50 U	108-90-7	CHLOROBENZENE	1800
108-05-4	VINYL ACETATE	100 U	100-41-4	ETHYLBENZENE	50 U
75-27-4	BROMODICHLOROMETHANE	50 U	100-42-5	STYRENE	50 U
				TOTAL XYLENES	1300

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013164

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH647

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/11/87
CONC/OIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION X YES

CAS NUMBER	UG/L	CAS NUMBER	UG/L
108-95-2 PHENOL	25	83-32-9 ACENAPHTHENE	10 U
111-44-4 BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5 2,4-DINITROPHENOL	50 U
95-57-8 2-CHLOROPHENOL	13	100-02-7 4-NITROPHENOL	50 U
541-73-1 1,3-DICHLOROBENZENE	10 U	132-64-9 DIBENZOFURAN	10 U
106-46-7 1,4-DICHLOROBENZENE	10 U	121-14-2 2,4-DINITROTOLUENE	10 U
100-51-6 BENZYL ALCOHOL	10 U	606-20-2 2,6-DINITROTOLUENE	10 U
95-50-1 1,2-DICHLOROBENZENE	10 U	84-66-2 DIETHYLPHTHALATE	10 U
95-48-7 2-METHYLPHENOL	10 U	7005-72-3 4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9 BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7 FLUORENE	10 U
106-44-5 4-METHYLPHENOL	10 U	100-10-6 4-NITROANILINE	50 U
621-64-7 N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1 4,6-DINITRO-2-METHYLPHENOL	50 U
67-72-1 HEXACHLOROETHANE	10 U	86-30-6 N-NITROSODIPHENYLAMINE (1)	10 U ^{WCK}
98-95-3 NITROBENZENE	10 U	101-55-3 4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1 ISOPHORONE	10 U	118-74-1 HEXACHLOROBENZENE	10 U
88-75-5 2-NITROPHENOL	10 U	87-86-5 PENTACHLOROPHENOL	50 U
105-67-9 2,4-DIMETHYLPHENOL	21	85-01-8 PHENANTHRENE	10 U
65-85-0 BENZOIC ACID	50 U	120-12-7 ANTHRACENE	10 U
111-91-1 BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2 DI-N-BUTYLPHTHALATE	10 U
120-83-2 2,4-DICHLOROPHENOL	10 U	206-44-0 FLUORANTHENE	10 U
120-82-1 1,2,4-TRICHLOROBENZENE	10 U	129-00-0 PYRENE	10 U
91-20-3 NAPHTHALENE	10 U	85-68-7 BUTYLBENZYLPHTHALATE	10 U
106-47-8 4-CHLOROANILINE	130	91-94-1 3,3'-DICHLOROBENZOIC ACID	20 U
87-68-3 HEXACHLOROBUTADIENE	10 U	56-55-3 BENZO(A)ANTHRACENE	10 U
59-50-7 4-CHLORO-3-METHYLPHENOL	10 U	117-81-7 BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6 2-METHYLNAPHTHALENE	10 U	218-01-9 CHRYSENE	10 U
77-47-4 HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0 DI-N-OCTYL PHTHALATE	10 U
88-06-2 2,4,6-TRICHLOROPHENOL	10 U	205-99-2 BENZO(B)FLUORANTHENE	10 U
95-95-4 2,4,5-TRICHLOROPHENOL	50 U	207-08-9 BENZO(K)FLUORANTHENE	10 U
91-58-7 2-CHLORONAPHTHALENE	10 U	50-32-8 BENZO(A)PYRENE	10 U
88-74-4 2-NITROANILINE	50 U	193-39-5 INDENO(1,2,3-CD)PYRENE	10 U
131-11-3 DIMETHYL PHTHALATE	10 U	53-70-3 DIBENZ(A,H)ANTHRACENE	10 U
208-96-8 ACENAPHTHYLENE	10 U	191-24-2 BENZO(G,H,I)PERYLENE	10 U
99-09-2 3-NITROANILINE	50 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013165

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah647

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000

or Ws =

Vt = 10000

Vi = 3.0

Form I

7410013166

ORGANICS TRAFFIC REPORT

① Case Number: 103-7410 Sample Site Name/Code: Baton Rouge, LA 103-7410	② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration	④ Ship To: TOXICOW INC BATON ROUGE, LA Attn: LEE KOO Transfer Ship To:												
⑤ Regional Office: ELISA Sampling Personnel: D. Spitzer 103-7410-3000 (Phone) Sampling Date: 6/11/87 (Begin) (End)	③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment													
⑥ For each sample collected specify number of containers used and mark volume level on each bottle.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Water (Extractable)</th> <th style="width: 20%;">Number of Containers</th> <th style="width: 20%;">Approximate Total Volume</th> </tr> </thead> <tbody> <tr> <td>Water (VOA)</td> <td>1</td> <td>8 oz.</td> </tr> <tr> <td>Soil/Sediment (Extractable)</td> <td>2</td> <td>8 oz.</td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> </tbody> </table>	Water (Extractable)	Number of Containers	Approximate Total Volume	Water (VOA)	1	8 oz.	Soil/Sediment (Extractable)	2	8 oz.	Other			⑪ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) No ICE. Samples Approx 80°F. Chain of Custody collected this AH656; tags and labels identify as AH646. Custody Seal intact
Water (Extractable)	Number of Containers	Approximate Total Volume												
Water (VOA)	1	8 oz.												
Soil/Sediment (Extractable)	2	8 oz.												
Other														
Shipping Information Name of Carrier: FedEx Date Shipped: 6/12/87 Airbill Number: 2832504442	⑧ Sample Description <input type="checkbox"/> Surface Water <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify)													
⑨ Sample Location [Blank]														
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) [Blank]														

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)LABORATORY NAME: ETC/TOXICON
LAB SAMPLE ID NO: 4182-07
SAMPLE MATRIX: SOIL
DATA RELEASE AUTHORIZED BY: *Warren L. Kelly*CASE NO: 7410
QC REPORT NO: 7410
CONTRACT NO: 68017148
DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED:
DATE ANALYZED: 06/17/87
CONC/DIL FACTOR: 1. PH 6.20
PERCENT MOISTURE: (NOT DECANDED) 20.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	13 U	78-87-5	1,2-DICHLOROPROPANE	6 U
74-83-9	BROMOMETHANE	13 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	6 U
75-01-4	VINYL CHLORIDE	13 U	79-01-6	TRICHLOROETHENE	6 U
75-00-3	CHLOROETHANE	13 U	124-48-1	DIBROMOCHLOROMETHANE	6 U
75-09-2	METHYLENE CHLORIDE	4 BJ	79-00-5	1,1,2-TRICHLOROETHANE	6 U
67-64-1	ACETONE	5 J	71-43-2	BENZENE	6 U
75-15-0	CARBON DISULFIDE	6 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	6 U
75-35-4	1,1-DICHLOROETHENE	6 U	110-75-8	2-CHLOROETHYLVINYLETHER	13 U
75-35-3	1,1-DICHLOROETHANE	6 U	75-25-2	BROMOFORM	6 U
156-60-5	TRANS-1,2-DICHLOROETHENE	6 U	108-10-1	4-METHYL-2-PENTANONE	13 U
67-66-3	CHLOROFORM	6 U	591-78-6	2-HEXANONE	13 U
107-06-2	1,2-DICHLOROETHANE	6 U	127-18-4	TETRACHLOROETHENE	6 U
78-93-3	2-BUTANONE	13 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	13 U
71-55-6	1,1,1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	1 J
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	13 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	6 U

- B - COMPOUND WAS DETECTED IN THE QC BLANK.
J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.
U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013120

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH646

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/17/87
OIL FACTOR: 10.0
PERCENT MOISTURE: (DECANTED) 20.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER	UG/KG	CAS NUMBER	UG/KG
108-95-2	PHENOL 4100 U	83-32-9	ACENAPHTHENE 4100 U
111-44-4	BIS(2-CHLOROETHYL)ETHER 4100 U	51-28-5	2,4-DINITROPHENOL 20000 U
95-57-8	2-CHLOROPHENOL 4100 U	100-02-7	4-NITROPHENOL 20000 U
541-73-1	1,3-DICHLOROBENZENE 4100 U	132-64-9	DIBENZOFURAN 4100 U
106-46-7	1,4-DICHLOROBENZENE 4100 U	121-14-2	2,4-DINITROTOLUENE 4100 U
100-51-6	BENZYL ALCOHOL 4100 U	606-20-2	2,6-DINITROTOLUENE 4100 U
95-50-1	1,2-DICHLOROBENZENE 4100 U	84-66-2	DIETHYLPHTHALATE 4100 U
95-48-7	2-METHYLPHENOL 4100 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER 4100 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER 4100 U	86-73-7	FLUORENE 4100 U
106-44-5	4-METHYLPHENOL 4100 U	100-10-6	4-NITROANILINE 20000 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE 4100 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL 20000 U
67-72-1	HEXACHLOROETHANE 4100 U	86-30-6	N-NITROSODIPHENYLAMINE (1) 4100 U
98-95-3	NITROBENZENE 4100 U	101-55-3	4-BROMOPHENYL-PHENYLETHER 4100 U
78-59-1	ISOPHORONE 4100 U	118-74-1	HEXACHLOROBENZENE 4100 U
88-75-5	2-NITROPHENOL 4100 U	87-86-5	PENTACHLOROPHENOL 20000 U
105-67-9	2,4-DIMETHYLPHENOL 4100 U	85-01-8	PHENANTHRENE 4100 U
65-85-0	BENZOIC ACID 20000 U	120-12-7	ANTHRACENE 4100 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE 4100 U	84-74-2	DI-N-BUTYLPHTHALATE 4100 U
120-83-2	2,4-DICHLOROPHENOL 4100 U	206-44-0	FLUORANTHENE 4100 U
120-82-1	1,2,4-TRICHLOROBENZENE 4100 U	129-00-0	PYRENE 4100 U
91-20-3	NAPHTHALENE 4100 U	85-68-7	BUTYLBENZYLPHTHALATE 4100 U
106-47-8	4-CHLOROANILINE 4100 U	91-94-1	3,3'-DICHLOROBENZIDINE 8300 U
87-68-3	HEXACHLOROBUTADIENE 4100 U	56-55-3	BENZO(A)ANTHRACENE 4100 U
59-50-7	4-CHLORO-3-METHYLPHENOL 4100 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE 19000
91-57-6	2-METHYLNAPHTHALENE 4100 U	218-01-9	CHRYSENE 4100 U
77-47-4	HEXACHLOROCYCLOPENTADIENE 4100 U	117-84-0	DI-N-OCTYL PHTHALATE 6400
88-06-2	2,4,6-TRICHLOROPHENOL 4100 U	205-99-2	BENZO(B)FLUORANTHENE 4100 U
95-95-4	2,4,5-TRICHLOROPHENOL 20000 U	207-08-9	BENZO(K)FLUORANTHENE 4100 U
91-58-7	2-CHLORONAPHTHALENE 4100 U	50-32-8	BENZO(A)PYRENE 4100 U
88-74-4	2-NITROANILINE 20000 U	193-39-5	INDENO(1,2,3-CD)PYRENE 4100 U
131-11-3	DIMETHYL PHTHALATE 4100 U	53-70-3	DIBENZ(A,H)ANTHRACENE 4100 U
208-96-8	ACENAPHTHYLENE 4100 U	191-24-2	BENZO(G,H,I)PERYLENE 4100 U
99-09-2	3-NITROANILINE 20000 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013121

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH646

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 24-Jun-87
Conc/Dil Factor: 1
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	10 U
319-85-7	Beta-BHC	10 U
319-86-8	Delta-BHC.....	10 U
58-89-9	Gamma-BHC (Lindane)	10 U
76-44-8	Heptachlor	10 U
309-00-2	Aldrin	10 U
1024-57-3	Heptachlor Epoxide.....	10 U
959-98-8	Endosulfan I	10 U
60-57-1	Dieldrin	20 U
72-55-9	4,4'-DDE	20 U
72-20-8	Endrin	20 U
33213-65-9	Endosulfan II	20 U
72-54-8	4,4'-DDD	20 U
1-31-07-8	Endosulfan Sulfate.....	20 U
50-29-3	4,4'-DDT	20 U
72-43-5	Methoxychlor	100 U
53494-70-5	Endrin Ketone	20 U
57-74-9	Chlordane	100 U
8001-35-2	Toxaphene	200 U
12674-11-2	Aroclor-1016	100 U
11104-28-2	Aroclor-1221	100 U
11141-16-5	Aroclor-1232	100 U
53469-21-9	Aroclor-1242	100 U
12672-29-6	Aroclor-1248	100 U
11097-69-1	Aroclor-1254	200 U
11096-82-5	Aroclor-1260	200 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = or Ws = 1.5 Vt = 1000 Vi = 3.0

Form I

7410013122



ORGANICS TRAFFIC REPORT

① Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOXICON INC BATON ROUGE, LA Attn: LEE KIDZ Transfer Ship To:																			
Sample Site Name/Code: VERSA		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: Sampling Personnel: D. J. [Signature] 703-850-3000 Sampling Date: 6/4/87 (Begin) (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td>4</td><td>4 liters</td></tr><tr><td>Water (VOA)</td><td>2</td><td>20 ml</td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	4	4 liters	Water (VOA)	2	20 ml	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other			⑪ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/15/87 Sample Condition on Receipt (e.g., broken, no ice, Chain of Custody, etc.) no ice. samples were approx 80°F. custody seal intact paperwork agrees.	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	4	4 liters																					
Water (VOA)	2	20 ml																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information Check completion of all entries. FED EX Name of Carrier: 6/12/87 Date Shipped: 283 2004442 Airbill Number:																							
⑧ Sample Description: Surface Water <input type="checkbox"/> Mixed Media <input type="checkbox"/> <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____				⑨ Sample Location																			
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) LAB COPY FOR RETURN TO SMO																							

7410013100

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: ETC/TOXICON
 LAB SAMPLE ID NO: 4182-06
 SAMPLE MATRIX: WATER
 DATA RELEASE AUTHORIZED BY: *Wann Lu/Kedd*

CASE NO: 7410
 QC REPORT NO: 7410
 CONTRACT NO: 68017148
 DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
 DATE EXTRACTED/PREPARED:
 DATE ANALYZED: 06/15/87
 CONC/DIL FACTOR: 1. PH NR
 PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	10	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	10 U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHER	10 U
75-35-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	10 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
 VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
 THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
 REPORTING QUALIFIERS.

FORM I

7410013101

B
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH645

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/11/87
CONC/OIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION X YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-46-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10 U	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U <i>WLL</i>
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 <i>BU</i>
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-06-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013102

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah645

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000

or Ws =

Vt = 10000

Vi = 3.0

Form 1

7410013103



ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>TOXICON INC</u> <u>BATON ROUGE, LA</u> Attn: <u>LEE KIM</u> Transfer Ship To:																			
Sample Site Name/Code: <u>VERMONT</u>		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: <u>VERMONT</u> Sampling Personnel: <u>D. J. [Signature]</u> <u>703-950-3000</u> (Phone) Sampling Date: <u>6/11</u> (Begin) (End)		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td><u>4</u></td><td><u>4 liters</u></td></tr><tr><td>Water (VOA)</td><td><u>2</u></td><td><u>80 ml</u></td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	<u>4</u>	<u>4 liters</u>	Water (VOA)	<u>2</u>	<u>80 ml</u>	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other			⑪ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. samples were approx. 80° F.</u> <u>custody seal intact.</u> <u>paperwork agrees.</u>	
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	<u>4</u>	<u>4 liters</u>																					
Water (VOA)	<u>2</u>	<u>80 ml</u>																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information <input checked="" type="checkbox"/> FED EX Name of Carrier: <u>6/12/87</u> Date Shipped: <u>2832004442</u> Airbill Number:																							
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Solids <input type="checkbox"/> Leachate <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) <u>HAZARDOUS WASTE</u> <u>NO BOX 818</u> <u>SAFETY MANAGEMENT OFFICE</u> <u>HAZARDOUS WASTE INVESTIGATION</u> <u>U.S. ENVIRONMENTAL PROTECTION AGENCY</u> LAB COPY FOR RETURN TO SMO																							

7410013080

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-05

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Warren L. Ketch*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/15/87

CONC/DIL FACTOR: 1. PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	5 U	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	10 U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHER	10 U
75-35-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	10 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013081

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH644

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/11/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION X YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-46-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10 U	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U <i>Wlk</i>
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 <i>BU</i>
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	24
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013082

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
ah644

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jun-87
Date Analyzed: 07-Jul-87
Conc/Dil Factor: 1
Percent Moisture(decanted) NR

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction [x] Yes

CAS Number		[ug/L] or ug/Kg
319-84-6	Alpha-BHC.....	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC.....	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide.....	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4,4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4,4'-DDD	0.1 U
1-31-07-8	Endosulfan Sulfate.....	0.1 U
50-29-3	4,4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1 U
12674-11-2	Aroclor-1016	0.5 U
11104-28-2	Aroclor-1221	0.5 U
11141-16-5	Aroclor-1232	0.5 U
53469-21-9	Aroclor-1242	0.5 U
12672-29-6	Aroclor-1248	0.5 U
11097-69-1	Aroclor-1254	1 U
11096-82-5	Aroclor-1260	1 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs = 1000 or Ws = Vt = 10000 Vi = 3.0

Form I

7410013083



ORGANICS TRAFFIC REPORT

Case Number: 7410		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: TOXICON INC. BAYOU ROUGE, LA Attn: LEE KIDD Transfer Ship To:																			
Sample Site Name/Code: C-100100		③ SAMPLE MATRIX (Check One) <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil/Sediment																					
⑤ Regional Office: VLSA		⑥ For each sample collected specify number of containers used and mark volume level on each bottle.		⑪ Analysis Lab: Rec'd by: [Signature] Date Rec'd: 6/13/87 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) No ill. samples rec. Approx 80°F. Custody seal intact paperwork agrees																			
Sampling Personnel: D. Justa 703-550-3000 Sampling Date: 6/11/87 (Begin) 6/11/87 (End) 6/11/87		<table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td>4</td><td>4 liters</td></tr><tr><td>Water (VOA)</td><td>2</td><td>50 ml</td></tr><tr><td>Soil/Sediment (Extractable)</td><td></td><td></td></tr><tr><td>Soil/Sediment (VOA)</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)	4	4 liters	Water (VOA)	2	50 ml	Soil/Sediment (Extractable)			Soil/Sediment (VOA)			Other				
	Number of Containers	Approximate Total Volume																					
Water (Extractable)	4	4 liters																					
Water (VOA)	2	50 ml																					
Soil/Sediment (Extractable)																							
Soil/Sediment (VOA)																							
Other																							
Shipping Information Check container of all samples Name of Carrier: FedEx Date Shipped: 6/12/87 Airbill Number: 2832004442																							
⑧ Sample Description: <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input type="checkbox"/> Mixed Media <input type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

U.S. ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313-703/557-2490 • FTS/557-2490

LAB COPY FOR RETURN TO SMO

7410013053

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON
LAB SAMPLE ID NO: 4182-04
SAMPLE MATRIX: WATER
DATA RELEASE AUTHORIZED BY: *Wm L. Kedd*CASE NO: 7410
QC REPORT NO: 7410
CONTRACT NO: 68017148
DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/15/87

CONC/DIL FACTOR: 1.

PERCENT MOISTURE: (NOT DECANTED)

PH NR
NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	1 J	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	10 U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHER	10 U
75-35-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	10 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013054

ORGANICS ANALYSIS DATA SHEET
 (PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
 DATE EXTRACTED/PREPARED: 06/15/87
 DATE ANALYZED: 07/11/87
 CONC/OIL FACTOR: 1.
 PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
 SEPARATORY FUNNEL EXTRACTION YES
 CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
104-46-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10 U	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39438-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U w/LIK
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 U
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013055



ORGANICS TRAFFIC REPORT

<p>① Case Number: 7410</p> <p>Sample Site Name/Code:</p>	<p>② SAMPLE CONCENTRATION (Check One)</p> <p><input checked="" type="checkbox"/> Low Concentration</p> <p><input type="checkbox"/> Medium Concentration</p> <p>③ SAMPLE MATRIX (Check One)</p> <p><input checked="" type="checkbox"/> Water</p> <p><input type="checkbox"/> Soil/Sediment</p>	<p>④ Ship To:</p> <p>TOXICON INC.</p> <p>BATON ROUGE, LA</p> <p>Attn: LEE KIDD</p> <p>Transfer</p> <p>Ship To:</p>										
<p>⑤ Regional Office: BSAZ</p> <p>Sampling Personnel: D. Justa</p> <p>703-550-3000</p> <p>Sampling Date: 6/11/81</p>	<p>⑥ For each sample collected specify number of containers used and mark volume level on each bottle.</p> <table border="1"><thead><tr><th>Water (Extractable)</th><th>Water (VOA)</th><th>Soil/Sediment (Extractable)</th><th>Soil/Sediment (VOA)</th><th>Other</th></tr></thead><tbody><tr><td>4</td><td>2</td><td></td><td></td><td></td></tr></tbody></table>	Water (Extractable)	Water (VOA)	Soil/Sediment (Extractable)	Soil/Sediment (VOA)	Other	4	2				<p>⑦ Analysis Lab:</p> <p>Rec'd by:</p> <p>Date Rec'd: 6/15/81</p> <p>Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)</p> <p>NO ice. samples were approx 80°F.</p> <p>Custody seal intact paperwork agrees</p>
Water (Extractable)	Water (VOA)	Soil/Sediment (Extractable)	Soil/Sediment (VOA)	Other								
4	2											
<p>Shipping Information</p> <p>Check container of all samples</p> <p>Name of Carrier: EX</p> <p>Date Shipped: 6/12/81</p> <p>Airbill Number: 2832004442</p>												

<p>⑧ Sample Description:</p> <p>Surface Water <input checked="" type="checkbox"/> Mixed Media <input type="checkbox"/></p> <p>Ground Water <input type="checkbox"/> Solids <input type="checkbox"/></p> <p>Leachate <input type="checkbox"/> Other (specify) _____</p>	<p>⑨ Sample Location</p>
--	--------------------------

⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature)

LAB COPY FOR RETURN TO SMO

7410013072

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ETC/Toxicon
 Lab Sample ID No: _____
 Sample Matrix: _____
 Data Release Authorized By: Wannan Lu/Kidd

Case No: 7410
 QC Report No: 7410
 Contract No: 68-01-7148
 Date Sample Received: 6/15/87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: NO FRACTION ANALYZED

Conc/Dil Factor: _____ pH _____

Percent Moisture: (Not Decanted) _____

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	
74-83-9	Bromomethane	
75-01-4	Vinyl Chloride	
75-00-3	Chloroethane	
75-09-2	Methylene Chloride	
67-64-1	Acetone	
75-15-0	Carbon Disulfide	
75-35-4	1, 1-Dichloroethene	
75-34-3	1, 1-Dichloroethane	
156-60-5	Trans-1, 2-Dichloroethene	
67-66-3	Chloroform	
107-06-2	1, 2-Dichloroethane	
78-93-3	2-Butanone	
71-55-6	1, 1, 1-Trichloroethane	
56-23-5	Carbon Tetrachloride	
108-05-4	Vinyl Acetate	
75-27-4	Bromodichloromethane	

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	
10061-02-6	Trans-1, 3-Dichloropropene	
79-01-6	Trichloroethene	
124-48-1	Dibromochloromethane	
79-00-5	1, 1, 2-Trichloroethane	
71-43-2	Benzene	
10061-01-5	cis-1, 3-Dichloropropene	
110-75-8	2-Chloroethylvinylether	
75-25-2	Bromoform	
108-10-1	4-Methyl-2-Pentanone	
591-78-6	2-Hexanone	
127-18-4	Tetrachloroethene	
79-34-5	1, 1, 2, 2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used.
 Additional flags or footnotes explaining results are encouraged. However, the
 definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit,
report the value

U Indicates compound was analyzed for but not detected. Report the
minimum detection limit for the sample with the U (e.g., 10U) based
on necessary concentration/dilution action. (This is not necessarily
the instrument detection limit.) The footnote should read: U-
Compound was analyzed for but not detected. The number is the
minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when
estimating a concentration for tentatively identified compounds
where a 1:1 response is assumed or when the mass spectral data
indicated the presence of a compound that meets the identification
criteria but the result is less than the specified detection limit but
greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a
concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has
been confirmed by GC/MS. Single component pesticides ≥ 10
ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a
sample. It indicates possible/probable blank contamination and
warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define
the results. If used, they must be fully described and such description
attached to the data summary report

7410013073

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH643RE

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 07/14/87
DATE ANALYZED: 07/16/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-46-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10 U	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 U
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013074



ORGANICS TRAFFIC REPORT

① Case Number: <u>7410</u>		② SAMPLE CONCENTRATION (Check One) <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> Medium Concentration		④ Ship To: <u>Toxicon Inc</u> <u>Baton Rouge LA</u> Attn: <u>LEE KISS</u> Transfer Ship To:																			
⑤ Regional Office: <u>VERSAR</u> Sampling Personnel: <u>D. J. [Signature]</u> <u>703-550-3000</u> (Name) (Phone) Sampling Date: <u>6/11/87</u> (Begin) <u>6/11/87</u> (End)		③ SAMPLE MATRIX (Check One) <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil/Sediment		⑥ For each sample collected specify number of containers used and mark volume level on each bottle. <table border="1"><thead><tr><th></th><th>Number of Containers</th><th>Approximate Total Volume</th></tr></thead><tbody><tr><td>Water (Extractable)</td><td></td><td></td></tr><tr><td>Water (VOA)</td><td></td><td></td></tr><tr><td>Soil/Sediment (Extractable)</td><td><u>1</u></td><td><u>8 oz.</u></td></tr><tr><td>Soil/Sediment (VOA)</td><td><u>2</u></td><td><u>8 oz.</u></td></tr><tr><td>Other</td><td></td><td></td></tr></tbody></table>			Number of Containers	Approximate Total Volume	Water (Extractable)			Water (VOA)			Soil/Sediment (Extractable)	<u>1</u>	<u>8 oz.</u>	Soil/Sediment (VOA)	<u>2</u>	<u>8 oz.</u>	Other		
	Number of Containers	Approximate Total Volume																					
Water (Extractable)																							
Water (VOA)																							
Soil/Sediment (Extractable)	<u>1</u>	<u>8 oz.</u>																					
Soil/Sediment (VOA)	<u>2</u>	<u>8 oz.</u>																					
Other																							
Shipping Information Name of Carrier: <u>FedEx</u> Date Shipped: <u>6/12/87</u> Airbill Number: <u>2832004442</u>		⑦ Analysis Lab: Rec'd by: <u>[Signature]</u> Date Rec'd: <u>6/15/87</u> Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.) <u>no ice. samples were approx 80°F</u> <u>Custody seal intact</u> <u>paperwork agrees</u>																					
⑧ Sample Description <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Mixed Media <input checked="" type="checkbox"/> Solids <input type="checkbox"/> Other (specify) _____		⑨ Sample Location																					
⑩ Special Handling Instructions: (e.g., safety precautions, hazardous nature) <u>NO HAZARDOUS MATERIALS</u> <u>NO TOXIC MATERIALS</u> <u>NO ENVIROMENT PROTECTION AGENCY</u> LAB COPY FOR RETURN TO SMO		7410013020																					

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: ETC/TOXICON
 LAB SAMPLE ID NO: 4182-03
 SAMPLE MATRIX: SOIL
 DATA RELEASE AUTHORIZED BY: *W. M. Lee, K. M. J.*

CASE NO: 7410
 QC REPORT NO: 7410
 CONTRACT NO: 68017148
 DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW
 DATE EXTRACTED/PREPARED:
 DATE ANALYZED: 06/17/87
 CONC/OIL FACTOR: 1. PH 5.80
 PERCENT MOISTURE: (NOT DECANTED) 13.0

CAS NUMBER		UG/KG	CAS NUMBER		UG/KG
74-87-3	CHLOROMETHANE	11 U	78-87-5	1,2-DICHLOROPROPANE	6 U
74-83-9	BROMOMETHANE	11 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	6 U
75-01-4	VINYL CHLORIDE	11 U	79-01-6	TRICHLOROETHENE	6 U
75-00-3	CHLOROETHANE	11 U	124-48-1	DIBROMOCHLOROMETHANE	6 U
75-09-2	METHYLENE CHLORIDE	14 B	79-00-5	1,1,2-TRICHLOROETHANE	6 U
67-64-1	ACETONE	2 J	71-43-2	BENZENE	6 U
75-15-0	CARBON DISULFIDE	6 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	6 U
75-35-4	1,1-DICHLOROETHENE	6 U	110-75-8	2-CHLOROETHYLVINYLETHYR	11 U
75-35-3	1,1-DICHLOROETHANE	6 U	75-25-2	BROMOFORM	6 U
156-60-5	TRANS-1,2-DICHLOROETHENE	6 U	108-10-1	4-METHYL-2-PENTANONE	11 U
67-66-3	CHLOROFORM	6 U	591-78-6	2-HEXANONE	11 U
107-06-2	1,2-DICHLOROETHANE	6 U	127-18-4	TETRACHLOROETHENE	6 U
78-93-3	2-BUTANONE	11 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	11 U
71-55-6	1,1,1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	6 U
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	11 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	6 U

- B - COMPOUND WAS DETECTED IN THE QC BLANK.
 J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.
 U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
 VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
 THE SAMPLE.

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
 REPORTING QUALIFIERS.

FORM I

7410013021

LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH642

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/16/87
DIL FACTOR: 25.0
PERCENT MOISTURE: (DECANTED) 13.0

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION YES

CAS NUMBER	UG/KG	CAS NUMBER	UG/KG
108-95-2	PHENOL 9500 U	83-32-9	ACENAPHTHENE 9500 U
111-44-4	BIS(2-CHLOROETHYL)ETHER . 9500 U	51-28-5	2,4-DINITROPHENOL 46000 U
95-57-8	2-CHLOROPHENOL 9500 U	100-02-7	4-NITROPHENOL 46000 U
541-73-1	1,3-DICHLOROBENZENE 9500 U	132-64-9	DIBENZOFURAN 9500 U
106-46-7	1,4-DICHLOROBENZENE 9500 U	121-14-2	2,4-DINITROTOLUENE 9500 U
100-51-6	BENZYL ALCOHOL 9500 U	606-20-2	2,6-DINITROTOLUENE 9500 U
95-50-1	1,2-DICHLOROBENZENE 9500 U	84-66-2	DIETHYLPHTHALATE 9500 U
95-48-7	2-METHYLPHENOL 9500 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER 9500 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER 9500 U	86-73-7	FLUORENE 9500 U
106-44-5	4-METHYLPHENOL 9500 U	100-10-6	4-NITROANILINE 46000 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE 9500 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL 46000 U
67-72-1	HEXACHLOROETHANE 9500 U	86-30-6	N-NITROSODIPHENYLAMINE (1) 9500 U
98-95-3	NITROBENZENE 9500 U	101-55-3	4-BROMOPHENYL-PHENYLETHER 9500 U
78-59-1	ISOPHORONE 9500 U	118-74-1	HEXACHLOROBENZENE 9500 U
88-75-5	2-NITROPHENOL 9500 U	87-86-5	PENTACHLOROPHENOL 46000 U
105-67-9	2,4-DIMETHYLPHENOL 9500 U	85-01-8	PHENANTHRENE 9500 U
65-85-0	BENZOIC ACID 46000 U	120-12-7	ANTHRACENE 9500 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE 9500 U	84-74-2	DI-N-BUTYLPHTHALATE 9500 U
120-83-2	2,4-DICHLOROPHENOL 9500 U	206-44-0	FLUORANTHENE 9500 U
120-82-1	1,2,4-TRICHLOROBENZENE . . . 9500 U	129-00-0	PYRENE 9500 U
91-20-3	NAPHTHALENE 9500 U	85-68-7	BUTYLBENZYLPHTHALATE 9500 U
106-47-8	4-CHLOROANILINE 9500 U	91-94-1	3,3'-DICHLOROBENZIDINE . . . 19000 U
87-68-3	HEXACHLOROBUTADIENE 9500 U	56-55-3	BENZO(A)ANTHRACENE 9500 U
59-50-7	4-CHLORO-3-METHYLPHENOL . . 9500 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE 9500 U
91-57-6	2-METHYLNAPHTHALENE 9500 U	218-01-9	CHRYSENE 9500 U
77-47-4	HEXACHLOROCYCLOPENTADIENE 9500 U	117-84-0	DI-N-OCTYL PHTHALATE 9500 U
88-06-2	2,4,6-TRICHLOROPHENOL . . . 9500 U	205-99-2	BENZO(B)FLUORANTHENE 9500 U
95-95-4	2,4,5-TRICHLOROPHENOL . . . 46000 U	207-08-9	BENZO(K)FLUORANTHENE 9500 U
91-58-7	2-CHLORONAPHTHALENE 9500 U	50-32-8	BENZO(A)PYRENE 9500 U
88-74-4	2-NITROANILINE 46000 U	193-39-5	INDENO(1,2,3-CD)PYRENE . . . 9500 U
131-11-3	DIMETHYL PHTHALATE 9500 U	53-70-3	DIBENZ(A,H)ANTHRACENE 9500 U
208-96-8	ACENAPHTHYLENE 9500 U	191-24-2	BENZO(G,H,I)PERYLENE 9500 U
99-09-2	3-NITROANILINE 46000 U		

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013022

Laboratory Name: ETC-Toxicon Laboratories, Inc.
Case No: 7410

Sample Number
AH642

Organics Analysis Data Sheet
(Page 3)
Pesticides/PCBs

Concentration: [Low] Medium (Circle one)
Date Extracted/Prepared: 15-Jul-87
Date Analyzed: 25-Jul-87
Conc/Dil Factor: 5
Percent Moisture(decanted) 0

GPC Cleanup Yes [x]-No
Separatory Funnel Extraction Yes
Continuous Liquid-Liquid Extraction Yes

CAS Number		ug/L or [ug/Kg]
319-84-6	Alpha-BHC.....	46 U
319-85-7	Beta-BHC	46 U
319-86-8	Delta-BHC.....	46 U
58-89-9	Gamma-BHC (Lindane)	46 U
75-44-8	Heptachlor	46 U
309-00-2	Aldrin	46 U
1024-57-3	Heptachlor Epoxide.....	46 U
959-98-8	Endosulfan I	46 U
60-57-1	Dieldrin	92 U
72-55-9	4,4'-DDE	92 U
72-20-8	Endrin	92 U
33213-65-9	Endosulfan II	92 U
72-54-8	4,4'-DDD	92 U
1-31-07-8	Endosulfan Sulfate.....	92 U
50-29-3	4,4'-DDT	92 U
72-43-5	Methoxychlor	460 U
53494-70-5	Endrin Ketone	92 U
57-74-9	Chlordane	460 U
8001-35-2	Toxaphene	920 U
12674-11-2	Aroclor-1016	460 U
11104-28-2	Aroclor-1221	460 U
11141-16-5	Aroclor-1232	460 U
53469-21-9	Aroclor-1242	460 U
12672-29-6	Aroclor-1248	460 U
11097-69-1	Aroclor-1254	415-920 U 3200
11096-82-5	Aroclor-1260	920 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs =

or Ws = 1.5

Vt =

5000

Vi = 3.0

Form 1

7410013023



U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313-703/557-2490 • FTS: 557-2490

Sample Number
AH 641

ORGANICS TRAFFIC REPORT

① Case Number:

7410

Sample Site Name/Code:

② SAMPLE CONCENTRATION

(Check One)

☒ **Low Concentration**
☐ **Medium Concentration**

④ Ship To:

Toxicom Inc
Baton Rouge, LA

Attn: **LEE KIDD**

Transfer

Ship To:

③ SAMPLE MATRIX

(Check One)

☒ **Water**
☐ **Soil/Sediment**

⑤ Regional Office: **VERSA**

Sampling Personnel:

D. Justa

703-650-3000

(Phone)

Sampling Date:

6/11/87

(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	4	4 liters
Water (VOA)	2	80 ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑪ Analysis Lab:

Rec'd by: **[Signature]**
Date Rec'd: **6/15/87**
Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)

No ICE. Samples were approx 80°F.
Custody seal intact paperwork agrees

⑦ Shipping Information

Fed-Ex

Name of Carrier

6/12/87

Date Shipped

2832004442

Airbill Number

⑧ Sample Description

☒ **Surface Water** ☐ **Mixed Media**
☒ **Ground Water** ☐ **Solids**
☐ **Leachate** ☐ **Other (specify)**

⑨ Sample Location

⑩ Special Handling Instructions:

(e.g., safety precautions, hazardous nature)

VERSA

50 Box 918

VERSA

7410013001

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

LABORATORY NAME: ETC/TOXICON

CASE NO: 7410

LAB SAMPLE ID NO: 4182-02

QC REPORT NO: 7410

SAMPLE MATRIX: WATER

CONTRACT NO: 68017148

DATA RELEASE AUTHORIZED BY: *Warren L. Kidd*

DATE SAMPLE RECEIVED: 06/15/87

VOLATILE COMPOUNDS

CONCENTRATION: LOW

DATE EXTRACTED/PREPARED:

DATE ANALYZED: 06/15/87

CONC/DIL FACTOR: 1. PH NR

PERCENT MOISTURE: (NOT DECANTED) NR

CAS NUMBER		UG/L	CAS NUMBER		UG/L
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	2 J	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	2 J	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYL VINYLETHYR	10 U
75-35-3	1,1-DICHLOROETHANE	1 J	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	10 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

J - REPORTED VALUE IS LESS THAN THE DETECTION LIMIT.

U - COMPOUND ANALYZED FOR BUT NOT DETECTED. THE REPORTED
VALUE IS THE MINIMUM ATTAINABLE DETECTION LIMIT FOR
THE SAMPLE.

NR - Not Required

SEE PAGE 1A FOR COMPLETE DEFINITIONS OF THE DATA
REPORTING QUALIFIERS.

FORM I

7410013002

8
LABORATORY NAME: ETC/TOXICON
CASE NO: 7410

SAMPLE NUMBER
AH641

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 06/15/87
DATE ANALYZED: 07/10/87
CONC/DIL FACTOR: 1.
PERCENT MOISTURE: (DECANTED)

GPC CLEANUP YES X NO
SEPARATORY FUNNEL EXTRACTION YES
CONTINUOUS LIQUID-LIQUID EXTRACTION

YES

CAS NUMBER		UG/L	CAS NUMBER		UG/L
108-95-2	PHENOL	10 U	83-32-9	ACENAPHTHENE	10 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10 U	51-28-5	2,4-DINITROPHENOL	50 U
95-57-8	2-CHLOROPHENOL	10 U	100-02-7	4-NITROPHENOL	50 U
541-73-1	1,3-DICHLOROBENZENE	10 U	132-64-9	DIBENZOFURAN	10 U
106-46-7	1,4-DICHLOROBENZENE	10 U	121-14-2	2,4-DINITROTOLUENE	10 U
100-51-6	BENZYL ALCOHOL	10 U	606-20-2	2,6-DINITROTOLUENE	10 U
95-50-1	1,2-DICHLOROBENZENE	10 U	84-66-2	DIETHYLPHTHALATE	10 U
95-48-7	2-METHYLPHENOL	10 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10 U	86-73-7	FLUORENE	10 U
106-44-5	4-METHYLPHENOL	10 U	100-10-6	4-NITROANILINE	50 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10 U	534-52-1	4,6-DINITRO-2-METHYLPHENOL	50 U
67-72-1	HEXACHLOROETHANE	10 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	10 BU
98-95-3	NITROBENZENE	10 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	10 U
78-59-1	ISOPHORONE	10 U	118-74-1	HEXACHLOROBENZENE	10 U
88-75-5	2-NITROPHENOL	10 U	87-86-5	PENTACHLOROPHENOL	50 U
105-67-9	2,4-DIMETHYLPHENOL	10 U	85-01-8	PHENANTHRENE	10 U
65-85-0	BENZOIC ACID	50 U	120-12-7	ANTHRACENE	10 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10 U	84-74-2	DI-N-BUTYLPHTHALATE	10 U
120-83-2	2,4-DICHLOROPHENOL	10 U	206-44-0	FLUORANTHENE	10 U
120-82-1	1,2,4-TRICHLOROBENZENE	10 U	129-00-0	PYRENE	10 U
91-20-3	NAPHTHALENE	10 U	85-68-7	BUTYLBENZYLPHTHALATE	10 U
106-47-8	4-CHLOROANILINE	10 U	91-94-1	3,3'-DICHLOROBENZIIDINE	20 U
87-68-3	HEXACHLOROBUTADIENE	10 U	56-55-3	BENZO(A)ANTHRACENE	10 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10 U
91-57-6	2-METHYLNAPHTHALENE	10 U	218-01-9	CHRYSENE	10 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10 U	117-84-0	DI-N-OCTYL PHTHALATE	10 U
88-06-2	2,4,6-TRICHLOROPHENOL	10 U	205-99-2	BENZO(B)FLUORANTHENE	10 U
95-95-4	2,4,5-TRICHLOROPHENOL	50 U	207-08-9	BENZO(K)FLUORANTHENE	10 U
91-58-7	2-CHLORONAPHTHALENE	10 U	50-32-8	BENZO(A)PYRENE	10 U
88-74-4	2-NITROANILINE	50 U	193-39-5	INDENO(1,2,3-CD)PYRENE	10 U
131-11-3	DIMETHYL PHTHALATE	10 U	53-70-3	DIBENZ(A,H)ANTHRACENE	10 U
208-96-8	ACENAPHTHYLENE	10 U	191-24-2	BENZO(G,H,I)PERYLENE	10 U
99-09-2	3-NITROANILINE	50 U			

(1) - CANNOT BE SEPARATED FROM DIPHENYLAMINE

FORM I

7410013003